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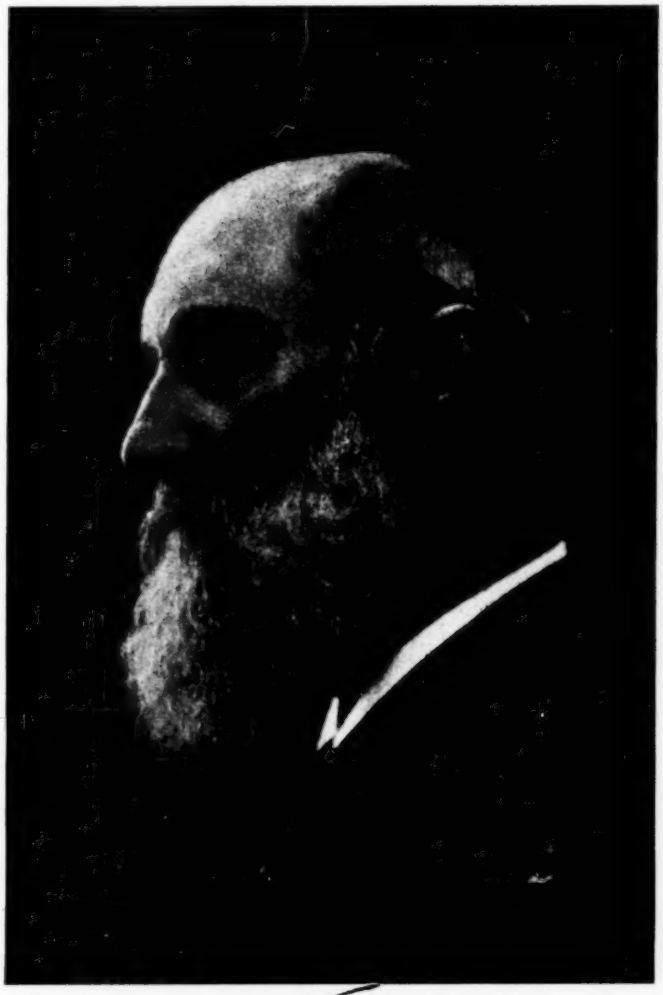
AMERICAN JOURNAL OF OPHTHALMOLOGY

Volume 14 January, 1931 Number 1

IN MEMORY OF PROFESSOR ERNST FUCHS

It has been thought appropriate to commemorate the passing of Professor Fuchs by brief notes of appreciation from a few of those American ophthalmologists who have come into close contact with him either in Europe or during his visits to this country. We shall probably have an opportunity of publishing later one or two fuller statements with regard to the life and work of this distinguished man.



E. Fuchs

Park Lewis, Buffalo: In 1882 a prize was offered by an English society for the best essay on the prevention of blindness. The jury to judge the competing papers was composed of the most noted ophthalmologists in Europe and included Cohn, Snellen, Berlin, Streatfield, Dufour, and others equally

well-known. The result of the contest was announced at the Fifth Congress of Hygiene held at the Hague in Holland two years later. Each manuscript appeared under a nom-de-plume. On opening the envelopes one essay so far exceeded all the others in originality, accuracy, and completeness that it was unanimously awarded the prize. It was signed "Viribus Unitas", and was found to have been written by a young Liége professor, Dr. Ernst Fuchs.

The report of the jury appeared in the Annales d'Oculistique and the hope was expressed that the essay might be widely disseminated. The edition was, however, small and soon went out of print. But its effect was not lost. Some copies of the little book crossed the ocean and stimulated renewed efforts along like lines.

By an interesting coincidence the Thirteenth International Congress of Ophthalmologists convened in September, 1929, in the same place at which earlier the Congress of Hygiene had been held—at The Hague in Holland —and over one hundred of the most eminent ophthalmologists in the world gathered at a luncheon to do honor to the dean of them all, now weighted down with years but still clear of intellect, Professor Fuchs. Many tributes of affection and esteem were offered at this time. Among these was a disc of gold, coming from a continent across the seas, and on which were inscribed the words chosen by himself forty-five years before, "Viribus Unitas".

Nothing which his confrères might bring could add to the distinction which his own life and character had given to him, but when Ernst Fuchs accepted the Dana Medal he gave to it such added luster that anyone to whom it may come in future years will feel himself doubly honored, not alone by the gift of the medal itself and what it represents, but also because it was once conferred on this man, perhaps the greatest ophthalmologist of all time, and certainly the greatest of our own time.

Edward Jackson, Denver: The desire to learn and to teach continued with Professor Fuchs throughout his long active professional life. It made his writings, especially what de Schweinitz calls "the world's greatest ophthalmic text-book", of value to ophthalmologists throughout the world. In Vienna, it filled the Fuchs clinic with earnest students. When he came to America in 1911, to give the Lane lectures in San Francisco, he also came to New London to read a paper before the American Ophthalmological Society on the field of vision in tabetic atrophy of the optic disc", based upon thirty cases of tabetic atrophy among notes of his private patients with central scotoma.

With Austro-Hungary broken up by the world war, he was ready to go out and teach pathology of the eye in German, Spanish, French, and English. He developed enthusiastic interest for this study in hundreds of American ophthalmologists, and even in far-away China. Learning of the intensive courses given in ophthalmology in America he wrote to Vienna to suggest such a course. This two-months course has made the opportunities of Vienna's great clinics even more accessible to English-speaking ophthalmologists than they had been before. While in Philadelphia in 1921 he read before the Section on Ophthalmology of the College of Physicians of Philadelphia a paper on senile changes of the optic nerve, reporting observations made in post-mortem examinations of the eyeballs, optic nerves, chiasm, and tracts in patients dying over seventy years old.

On his last visit to America, in 1929, to speak at the opening of the Wilmer Institute in Baltimore, he also went to Saint Louis, to attend the meeting of the National Society for the Prevention of Blindness. While there he pointed out that the notes on the Wintersteiner microscopic slides, now in Saint Louis University, were written in South German; a dialect that no one had been found to translate, but which he understood and would get translated

for the University. The last time I saw him, he sat in the laboratory at Washington University, studying a microscopic slide, to explain an unusual condition and to answer the questions asked him about it. We knew that Fuchs was great. Let us understand the nature and sources of his greatness.

William H. Wilmer, Baltimore: With the thought of the last sleep of that great humanist, scientist, and cultured gentleman, Ernst Fuchs, a multitude of delightful recollections of him come to one's mind. Among them are his visit to this country in 1911 and 1922. In October, 1929, he represented Europe at the opening of the Wilmer Ophthalmological Institute of Johns Hopkins University and Hospital. While there, he charmed old and young alike by his physical and mental activity, his love of travel, his keen sense of humor, his profound knowledge, and his great modesty. And there are delightful memories of visits to him in the charming medieval house in which he was born, in the village of Kritzendorf, not far from Vienna. One remembers the monastery-like dwelling on the street, the garden back of the house, and, still higher up, the hill top from which he loved to view the beautiful valley below; he himself was ever a dweller upon Olympus. Then there are recollections of pleasant lunches under the trees, with interesting conversation, and instructive hours spent in looking at his choice microscopical specimens.

But it is impossible to do justice to this multiminded and large-hearted man, even if words of tribute to him were allowed in unlimited number. At his passing away, one can exclaim with David: "There is a prince and a great man fallen this day in Israel." An inspiring teacher, a lovable man, and a great ophthalmologist has "joined those whom men call immortal".

It is beyond the imagination to conceive a more splendid memorial for him than to have engraved in the hearts of all who came in contact with him respect, admiration, and love. To his friends, his death is like the falling of some great tree in our landscape, "leaving a vacant space against the sky".

George Franklin Libby, Santa Monica, California: After study and observation at the great clinics of Berlin, Vienna, Paris, and London in 1894 and 1895 I felt that Professor Ernst Fuchs was the greatest authority in ophthalmology of the eminent men who were my teachers. Following his clinical

HOFRAT PROFESSOR ERNST FUCHS, 1924

and surgical work day after day, I got the impression of patience, tireless effort, good poise, and human kindness both to his patients and to his students. When an English-speaking auditor failed to understand his German, Fuchs was quick to explain his point in English.

It was my privilege to attend a small dinner in London given by Sir Anderson and Lady Critchett in July, 1895, in honor of Professor Fuchs. I was impressed by the modesty, simplicity, fine dignity and friendliness of this truly great man.

In the late spring of 1922 Professor Fuchs was the honored guest of the Colorado Ophthalmological Society, at dinner. Speaking to me of the

tendency of many travelers to write when insufficiently informed, he said: "When I had spent two weeks in America I felt that I could write a book about it; after two months, I thought a magazine article would comprise my knowledge of the United States, but now that six months more have passed I do not feel competent to write anything about your great and complex country." That remark is more illuminating than any eulogy I could write of a man who had my sincerest admiration and affection.

George Francis Suker, Chicago: The life of Ernst Fuchs from its inception to the closing moment was a guide and inspiration to all the ophthalmologists of the world. His words and deeds enlightened hosts of young and old ophthalmologists throughout civilization. He was the idol of all, and his memory is sacredly enshrined in our hearts. Fortunate are those who sat at his feet and imbibed the knowledge which he so simply and understandingly expounded.

Never will any of those who attended the 13th International Congress of Ophthalmology at Amsterdam in 1929 forget this energetic, wholesome, and lovable man, though bent in body, his face radiant with joy as he met the members—calling each by his name and home—a wonderful memory.

The luncheon given in his honor at the Vandelpark at that time was attended by men from every quarter of the globe—nearly all, if not all, his former students—each one a profound admirer and lover of the Hofrat. It was indeed a happy occasion that so many did break bread with him at the same time. And now only cheerful memories of the Hofrat remain for those of us who are still sojourning here. A grand old man called home!

W. H. Crisp, Denver: What most impressed me about Professor Fuchs was his manysidedness. This was particularly displayed in our Colorado mountains. Like many other professional men in Europe, and particularly in Austria and Germany, in his earlier years he had been an enthusiastic alpinist, and his persistent love of the outdoors and especially of the mountains was remarkable in a man of advanced years and sedentary occupation. Not so many years ago, starting from the automobile road at about 10,500 feet above sea level, and in company with three American ophthalmologists—one of whom was another well-known lover of the outdoors, Edward Jackson—Professor Fuchs led the way in climbing to the summit of one of our lesser Colorado peaks which rises to an altitude of about twelve thousand feet. His pace was deliberate but steady, and he showed as much ability as any of us to "make the grade" at that high altitude. All the way through the automobile drive, and during the climb on foot, he displayed a vivid interest in the geology and botany of the region, making comparisons between the flowers and plants there encountered and the related botanical forms with which he had long been familiar in Europe.

Another characteristic which I shall always remember was his ability as a public speaker. At one of the official dinners held in connection with the Heidelberg Congress of the German Ophthalmological Society in 1925, he was the principal after-dinner speaker. Most of his talk was devoted to a deeply humorous expression of his lifelong dedication to a lady whom he had wooed in his youth and whose maturer qualities had endeared her to him more and more throughout the years—the science and art of ophthalmology. On that occasion, as always, his choice of language was happy and effective. His classical education added a touch of grace and distinction, the artistry with which he concealed the unfolding of his mystery was in accordance with the best of literary traditions, and the whole effect was piquant and delightful.

Will Otto Bell, Seattle: To those of us whose education in ophthalmology has been influenced largely by Ernst Fuchs, his death seems a personal loss.

The many who have fortunately come in contact with him realize, in a measure, his mastery. The entire ophthalmologic profession knows and reveres his teachings. Students scattered over the entire world listened to his voice as he traveled and taught from country to country, even after the days of activity of the average man were supposedly passed. No great gathering of ophthalmologists seemed complete without his presence.

Above my desk is his photograph taken in 1912 when I first learned to know and revere him. In Amsterdam, last year, while I realized his body had grown a bit older, I found unchanged his kindliness, his interests, and his brilliancy of mind. Personal memories of his career must stimulate all who bear in their hearts a great love for him and for ophthalmology.

Now, that his work is over, I like to think of him resting close to the great river Danube, which flows past the quiet country home he loved, while we in turn gradually absorb the legacy to the science of ophthalmology which he so bountifully provided.

Harvey J. Howard, Saint Louis: In the autumn of 1922 Professor Fuchs, while en route around the world, stopped off in Peking for a period of six weeks. On recommendation of the writer and of the other members of the executive faculty of the Peking Union Medical College (Rockefeller), the trustees of the college had appointed him as the first visiting professor of ophthalmology. The news of his intended coming had brought forth numerous applications from both foreign and Chinese physicians for an intensive course in ophthalmology in which Professor Fuchs was scheduled to participate. As a result fifteen well prepared Chinese physicians who understood English and fifteen foreign (mostly American and British) physicians were selected to take the course. Two of the physicians traveled two weeks and a distance of two thousand miles each way in order to attend.

Professor Fuchs taught two hours each day, the remaining hours being carried by the ophthalmological staff of the college. In addition he spoke before the local medical societies several times, and he never failed to astonish his audience with his intimate knowledge of medicine as a whole. In fact, the interrelationship between ophthalmology and general medicine was the keynote of his message during those memorable six weeks in Peking. All of the members of the special class, and perhaps even more those of us who were sharing in the teaching, will always look back upon those six weeks with Professor Fuchs as the high spot in our ophthalmological training.

During his stay in the Chinese national capitol, he honored me and my family by living in our home, although he always made it appear that it was a privilege for him to be with us. We soon learned to love him as though he really were a member of the family; he was so cheerful, so thoughtful, and so modest.

We could not help but miss him when he left. Yet there were compensations to come, for from that time on he wrote us several letters every year. He seemed genuinely interested in very member of the family and usually made comments or asked questions about the children. To me his letters were an inspiration, and now that no more will come they seem priceless.

Professor Fuchs was an expert traveler who adapted himself quickly to the situation in every place. In Peking he scorned the use of a guide or an interpreter. The most that he would permit us to do for him was occasionally to loan him our own 'ricksha; generally he would go out into the street and hail the first 'ricksha man he saw, take out his map of the city, point to a spot on it, and then away they would go for half a day together. Before the end of the six weeks, Professor Fuchs was far more familiar with that great historic city than I was, and was telling of many fascinating things in it that I had never heard of or seen before.

A year later and I found myself a

guest in his home in Vienna. In the meantime his son had gone to Peking to carry on my work during my sabbatical leave of absence. The same kindliness of spirit, the same personal interest and helpfulness, the same modesty, and the same sense of humor that I found in him in Peking when he was a guest I now found in him as host. In the memory of those of us who are fortunate enough to have shared his hospitality his city home in the Skodagasse and his summer home at Kritzendorf will always be held as shrines where his spirit will never die.

Professor Fuchs was a great ophthalmologist, probably the greatest the world has known; but he was more than that—he was a truly great man. What a privilege to have known him and especially to have known him as a friend!

Hans Barkan, San Francisco: The Beethoven of ophthalmology is no longer with us. It is hard to believe that the tall though slightly stooped figure with the keen blue eyes and nobly domed head will no longer walk with long strides from lecture hall to operating room, white coat dusted with chalk of many colors flapping at the knees.

It is hard to believe that his microscope stands silent and deserted, nevermore to be gently adjusted by those long fingers or swept by the gray beard; or that the finely written notebooks will no longer bear fresh pencil marks in shorthand of what that keen eye and brain observed.

It is hard to believe that he will no longer teach us—quietly, modestly, but certainly—out of that storehouse of the born observer and collector of facts, of specimens, of slides, of cases, of discussions, of the literature and history of his science.

Behind his tall figure in my day stood, as swiftly new patients passed before him, his loyal assistants—Meller, Gutzman, Kramer, Purtscher, and Lindner—the last and youngest to be his successor in the chair. The two "Diener", Joseph and "der kleine Joseph", controlled the surging multitude; Rabbis from Jerusalem, Egyptians, Syrians, Russians, Hungarians, Serbs, Greeks, Turks, the Slavics of many small nations, Austrians, and Germans—all in turmoil, all with one desire—to see Fuchs—to see "den Hofrat".

Years have passed since all this; yet in the memory of those who were with him it has always gone on as being so—his death will do little, if anything, to change that; throughout our lives he will still live on as "der Hofrat". That fine spirit will remain alive to us—his physical self even still seems to be in the clinic—it is best so and quite natural.

Harry S. Gradle, Chicago: It was in the year 1909 that I was Volontär-assistänt in the Fuchs clinic in Vienna, and it so happened that there were no other Americans so assigned that year. His clinic was the shrine of the ophthalmic world. From the Orient and the Occident, from North and South America, and from czaristic Russia to the Transvaal, visitors poured in daily. These visitors and the regular assistants of the clinic made an imposing troop that stood behind the Hofrat at his daily inspection of interesting ambulatory cases presented by Meller, Bergmeister, Lindner, and others whose names loom large in ophthalmic history.

Fuchs always wore a long white gown with a rubber-rimmed condensing lens in the right hand pocket and a Zeiss loupe of six diameters magnification in the left. He stood in the middle of the corridor with a window at his back and we grouped ourselves behind him. The assistants in turn presented cases of unusual interest with brief histories and tentative diagnoses. In the consideration of external diseases, the Hofrat relied mainly upon his naked eyes (he was somewhat myopic), assisted frequently by the loupe. After arriving at a decision, he made suggestions to the assistant in charge and then, half-turning to the spectators, commented briefly upon the unusual

features of the case. Questions were frowned upon and were usually left unanswered owing to lack of time, but he was never too pressed to speak a reassuring word to the patient. Then he and the retinue went into the dark-room for the fundus cases, where an even shorter time was spent.

The comments upon those cases, spoken in a low monotone, have remained in my memory ever since. But of all memories of the Hofrat, in his clinic, at the Heidelberg meetings, at the International Ophthalmological Congresses in Naples and Amsterdam, at the meetings in Philadelphia, and at the course he gave in Chicago, my happiest is of the time when he was a guest in my home, and of his real pleasure in the old-time friends who gathered there to greet him.

Lawrence T. Post, Saint Louis: My personal acquaintance with Professor Fuchs was limited to his visits to our country, but even the briefest meeting with him could not be casual. He radiated personality and every meeting with him was certain to leave a lasting impression.

He came to Saint Louis several years after the World War to give a course in ophthalmic pathology. Beautiful specimens were shown and most ably and interestingly discussed. Unfortunately, Professor Fuchs was incapacitated by a severe cold from giving his last two lectures, and he was amazingly distressed because he feared that his hearers might feel that they were not getting all that they were entitled to.

It was during his stay in Saint Louis that I saw more of him than at any other time. As a consultant his examinations were very careful and thorough; the patient was handled with gentleness and consideration but the Professor expressed his opinion with extreme frankness and candor, being unwilling to offer hope where he felt none existed.

Like thousands of other ophthalmologists I had been brought up to regard Professor Fuchs as the dean of our profession. The friendship of later years in no way disappointed the ideal of youth. His kindness, his modesty, and his amazing knowledge made him one of those rare men who may truly be called great.

Charles M. Swab, Omaha: The passing of Hofrat Professor Ernst Fuchs deprived the world of one of its real benefactors. Not only was he pre-eminent in his own field by reason of his lifelong devotion thereto both in actual practice and in research, but in his influence upon his confrères directly, as well as by his teaching and writings, he was a source of constant inspiration. He invariably met his obligations to patients, colleagues, students, associates, readers, and friends with conscientious, intelligent professional dignity. To him satisfaction came only with giving his best. This was his motive principle. By his ceaseless study, patient teaching, voluminous research, prolific writing, and masterful clinical skill he won and held the high regard of the ophthalmological world. In his personality, too, were embodied the human qualities of mind and heart that we admire and love, perhaps even envy; but it is worthy of remark that he was singularly immune from the effects of anything savoring of jealousy. His position was accorded him as of right, due to his achievements in his ceaseless endeavors to find and bring to light new and hidden truths.

While his loss is and will be deplored by ophthalmologists throughout the world, it is no little solace to realize that the results of his studies and research will be of immense service for the relief of mankind for long years to come. His contributions to science and in particular to ophthalmology will ever serve as the most fitting monument to his memory.

THE BLIND PENSIONERS OF ILLINOIS

WILLIAM H. WILDER, M.D., F.A.C.S. AND
AUDREY M. HAYDEN, A.B.
CHICAGO

Tables are given to show the causes of blindness among those on the blind pension roll of the state of Illinois. The most prominent parts are played by opacities of the cornea, cataract, glaucoma, affections of the optic nerve, and trauma. Unfortunately, in a great many cases the only information obtainable was from persons untrained in the examination of the eye. Every state should organize a central commission for the blind. Definitions of blindness should be sufficiently flexible to cover variable conditions as found by the expert, taking into consideration the visual fields and the character of the lesion affecting sight. Read at the meeting of the Chicago Ophthalmological Society, May 19, 1930. The authors are respectively vice president and executive secretary of the Illinois Society for the Prevention of Blindness.

In many of the states of our country there exist commissions for the blind whose duty it is to collect statistics relating to blindness and to administer aid either in the form of pensions or of vocational help to the blind persons who need such assistance.

In Illinois there is no such central commission for the blind. State aid such as was formerly given in the form of industrial homes for the blind has been supplemented by a system of pensions by which each needy and worthy blind person receives one dollar per day, half of which comes from the state and half from the county.

The administration of the pension devolves upon the various county clerks who receive applications and issue warrants to the State Treasurer for the benefit of such persons as have been found worthy by medical examination. In order to obtain information as to the number of blind applicants in the state, it was therefore necessary to write to each of the one hundred and two county clerks requesting the number of blind pensioners in that county, as well as the name and address of the county medical examiner.

After this information had been obtained, it was necessary to visit each county clerk to get from him the names and addresses of the various pensioners in his county, after which a visit was made to the county medical examiner of whom we requested information as to the diagnoses of the pensioners on the county roll. In very few instances were we able to get this information from the county examiner, probably because of lack of records; we were, therefore, forced to visit the homes of the pensioners to learn what oculist or hospital or clinic had had them in charge. After obtaining such information it meant a visit either to the oculist or to the hospital or clinic where the patient had been treated; in many cases it meant going back through the files for years to secure definite information. In many cases we were able to locate the record; in some, the physician to whom we were referred had died and records were no longer obtainable.

We were very courteously treated by all the hospitals and clinics in the state and by all the ophthalmologists and general practitioners to whom we were referred by the pensioners. In some cases we had to take the word of the pensioner as to the cause of his affliction. We only took such diagnoses as sounded reasonable. If a pensioner told us he had cataracts, we felt that he probably did not know much about his trouble. If, however, he told us that he had choroiditis or retinal separation or iridocyclitis we felt that he probably knew something of what he was talking about, presumably repeating the statement of some oculist. We felt, however, that in most cases the diagnoses received from the pensioners were not to be relied upon.

General analysis of survey
Causes of blindness on blind pension roll
State of Illinois

Total number blind pensioners as of June, 1928 3,517

Number of males on roll	2,035	
Number of females on roll	1,482	3,517
Total number diagnoses obtained:		
from oculists	1,751	
from general practitioners	990	
from pensioners	438	
from optometrists	2	3,181
Number with unsatisfactory diagnoses	137	
Unable to find at addresses given by county clerk	199	3,517

Causes of blindness

1. Affections of the conjunctiva			
(1)	Conjunctivitis	9	
	Atrophy of the conjunctiva	1	
(2)	Pterygium	5	15
2. Affections of the cornea			
(1)	Opacities following ophthalmia neonatorum	110	
(2)	Opacities following ophthalmia in adults	13	
(3)	Opacities following trachoma	306	
(4)	Opacities following trachoma with complications	43	
(4)	Opacities following measles	16	
(5)	Opacities following scarlet fever	5	
(6)	Opacities following small pox	7	
(7)	Opacities following typhoid fever	3	
(8)	Opacities following scrofula	9	
(9)	Opacities following keratitis (unqualified)	10	
	Opacities following chronic keratitis	4	
	Opacities following chronic keratitis with complications	7	
(10)	Opacities following interstitial keratitis	15	
	Opacities following interstitial keratitis with complications	2	
(11)	Opacities following phlyctenular keratitis	1	
(12)	Opacities following ulcers (no cause given)	81	
	Opacities following ulcers with complications	28	660
3. Affections of the crystalline lens			
(1)	Congenital and juvenile cataracts	28	
	Congenital and juvenile cataracts with complications	11	39
(2)	Senile cataracts	596	
	Senile cataracts with complications	78	674
	Diabetic cataracts	3	716
4. Affections of the uveal tract			
(1)	Uveitis	3	
	Metastatic uveitis	1	
	Uveal tuberculosis	1	
	Uveitis with complications	2	
(2)	Iritis	19	
	Iritis with complications	6	
	Rheumatic iritis	2	
	Chronic iritis	1	
	Recurrent plastic iritis	1	
	Luetic iritis	7	
	Congenital aniridia	1	
(3)	Iridocyclitis	10	
	Iridocyclitis with complications	4	
	Iris bombé	2	
	Iris bombé with phthisis bulbi	1	
(4)	Choroiditis	9	
	Congenital choroiditis	2	
	Septic choroiditis	1	
	Metastatic choroiditis	2	
	Choroiditis with hyperopia, astigmatism, and amblyopia	1	
	Disseminated choroiditis	3	
	Luetic choroiditis	4	
	Choroidal atrophy	4	
	Choroiditis with complications	11	
	Chorioretinitis	9	
	Chorioretinitis and secondary optic atrophy	2	
	Diabetic chorioretinitis	1	
	Chorioretinitis pigmentosa	2	
	Chorioretinitis with convergent squint	1	113
5. Affections of the retina			
(1)	Retinitis	5	
	Retinitis albuminurica	3	
	Neuro retinitis	2	
(2)	Retinitis pigmentosa	16	
	Retinitis pigmentosa with complications	4	
	Congenital retinitis pigmentosa	2	
(3)	Detachment of the retina	18	
	Detachment of the retina with secondary cataract and glaucoma	2	
	Embolism of central artery	2	
(4)	Retinal hemorrhage	8	
	Retinal hemorrhage with secondary cataract	1	
(5)	Miscellaneous retinal diseases	9	72
6. Glaucoma			
(1)	Congenital buphthalmos	6	
(2)	Diabetic glaucoma	1	

(3) Glaucoma (unqualified)	230	
Glaucoma and cataracts	38	
Glaucoma with complications	20	295

7. Affections of the optic nerve

(1) Optic neuritis	33	
Optic neuritis due to alcoholism	4	
Optic neuritis following diabetes	1	
Optic neuritis, luetic	1	
Optic neuritis with cataracts	2	
(2) Atrophy of optic nerve		
Congenital	18	
Luetic	97	
Following brain tumor	12	
Following meningitis	27	
Following cerebral hemorrhage	10	
Following diabetes	1	
Optic atrophy (no cause given)	349	
Optic atrophy with cataracts	30	
Optic atrophy with complications	10	595

8. Blindness from trauma

(1) Simple	163	
(2) Complicated		
(a) Trauma with sympathetic ophthalmia	64	
Trauma with sympathetic ophthalmia and optic atrophy	1	
(b) Trauma with cataracts	39	
Trauma with cataracts and other complications	14	
(c) Trauma and optic atrophy	33	
Trauma and optic atrophy and other complications	3	
(d) Trauma and corneal ulcerations	21	
Trauma and corneal ulcerations and other complications	3	
(e) Trauma and glaucoma	7	
Trauma and glaucoma and other complications	6	
(f) Miscellaneous complications	34	388

9. Myopia with complications

(1) Myopia	2	
Myopia with choroidal changes	9	
Progressive myopia	4	
High myopia	10	
Congenital myopia and retinitis pigmentosa	1	
Myopia and cataracts	6	
Myopia and atrophy	1	
Myopia and glaucoma	1	
Myopia and detachment of retina	1	35

10. Malformations

(1) Anophthalmos	3	
(2) Conical cornea	1	
(3) Microphthalmos	3	
(4) Microphthalmos and coloboma of choroid	1	
(5) Coloboma	2	
(6) Phthisis bulbi	11	21

11. Congenital blindness 16 16

12. Postoperative blindness

(1) Following cataract operation	140	
(2) Following glaucoma operation	40	
(3) Following strabismus operation	1	
(4) Following removal of growth	1	
(5) Following operation for cancer	1	
(6) Following operation for opacities	1	
(7) Following operation for brain tumor	1	
(8) Following hemorrhage from operation	1	
(9) Following postoperative iridocyclitis	1	187

13. Enucleations

(1) Sarcoma	1	
(2) Nystagmus	1	
(3) Orbital tumor	1	
(4) Growth	1	
(5) No cause given	3	7

14. Amblyopia 5

15. Senile changes 22

16. Atrophia bulbi 8

17. Unclassified 23
From cancer 3

Summary of causes of blindness

Opacities of cornea:		
from trachoma	339	
from other causes	321	660
Cataract in all forms		716
Affections of uveal tract		113
Affections of retina		72
Glaucoma and complications		295
Affections of optic nerve and complications		595
Trauma		388
Postoperative		187 3,026
All other causes		491
		3,517

A study of this report arouses some interesting and possibly instructive reflections. In the first place, the obvious

inaccuracies of many of the diagnoses make the report unfit for scientific deductions as to the causes of blindness in a given number of persons. This arises from the fact that the only information available in many of the cases was obtained from persons untrained to make expert examinations of the eye, such as general practitioners, or from the hearsay evidence of the patients themselves. Note that in only 1,751 cases, less than half, could the diagnosis be obtained from oculists. In 990 of the cases, 28.2 percent of the whole, the diagnosis of a general physician was the only information obtainable.

It is doubtless true that in many of this group the appearance of the eye itself would be prima facie evidence of blindness. This leaves 776, or more than twenty percent of the whole, in which we found no medical diagnosis, and in a number of these, 199, no evidence of the patient himself except the record on the county clerk's roll, which we were unable to verify.

Furthermore, we are unable to make any scientific deductions from the diagnoses obtained from the oculists, much less from those obtained from the general physicians, because in many cases these would not conform to the conditions existing at the time when the lesion that preceded or caused the blindness was active.

These glaring defects suggest to us some ideas. We believe that if these ideas were put into effect they would improve the system of blind pensions not only in this state, but also in others that are as badly off in this respect as is Illinois.

Central commission for the blind

1. There should be a central commission for the blind. This, if properly constituted and properly operated, would take care of many of the problems of prevention of blindness, as well as those of blindness itself.

When we consider that this affliction costs the state annually in pensions alone upwards of one and a quarter million dollars and that in addition there is a loss to the communities of the potential usefulness of all such blind dependents, we realize the importance of measures looking to the prevention of blindness. It is as much a function of the state to look after such matters as it is to look after matters of health.

2. Such a commission should see that all applicants for the pension are properly examined by competent oculists, and the findings recorded. This is necessary to detect malingering and to prevent imposture. So far as possible, applicants should be examined by the expert ophthalmologist of the central commission. The examiner should be a man of approved skill holding the certificate of the American Board for Ophthalmic Examinations.

Other experts of such approved standing could be appointed by the central commission in counties where they lived, but in case there were none such, applicants should be required to consult such an appointed expert in a nearby county, or to proceed to the office of the commission to be examined by the central expert.

That such a plan would be much superior to the present one is shown by our observations. For example, we found that in only fifteen counties of the state had oculists been appointed by the county supervisor to examine applicants for the blind pension. In eight of these counties the information we desired was easy to obtain, for the examiners evidently had a thorough knowledge of eye diseases and had kept excellent records of cases applying for the pension. These counties were Kankakee, Rock Island, Knox, Kane, Lawrence, Livingston, McDonough and St. Clair.

In eighty-six counties general practitioners were the only examiners of applicants. A few of these men had kept their records meticulously. Most of the others showed little or no interest in the cause of the blindness, merely stating whether or not in their opinion the applicant was blind. Very few of them had ever considered what constituted blindness and had no convictions on the subject. Very few of them made any recommendations for operation or treatment. Our investigation showed

thirty-two counties in the state where there are no eye, ear, nose or throat specialists. Naturally with such a system operating, one would expect to find abuse of the pension privilege.

Some states make provision for annual reexamination of applicants for pension, thus recognizing the fact that eye conditions may improve under the right care and treatment or because of operation. From the standpoint of prevention of blindness, the flaw in the Illinois law is the fact that it leaves no room for salvage on the blind pension roll. There is no doubt that many of the applicants for this state gratuity might have their vision improved or restored if they came to the attention of the proper authorities and were properly treated; they would then no longer be charges on the state. Some pensioners whose vision had been restored by operation or treatment have remained on the blind pension roll because there is no machinery for rechecking and there is apparently little interest in conservation of vision. These cases show both the need of a regular checkup and the need for a clearer definition of blindness, so that general practitioners may have a better idea of who may qualify under the law.

The value of having a trained ophthalmologist make the examination is illustrated by an excellent report of Dr. A. L. Adams of Jacksonville to the commissioners of Morgan county. He examined sixty persons who were drawing pensions or were applying for them. Of these, Dr. Adams found forty-five worthy and he advised continuance of the pension. Of the remaining fifteen, of whom five were drawing pensions, he recommended that the pension be revoked or withheld in ten, pending the result of treatment of trachoma or the removal of a cataract. In one of these cases, operation for cataract had resulted in 20/60 vision, and a number of the others seemed promising.

State laws on blindness

One of the better features of the Illinois Law is the fact that the pension funds are half from the county and half from the state. It is a well-known fact that county relief funds are less open to misuse than state relief funds. This, of course, is more apt to be true in the rural counties than in a county such as Cook. However, this same provision might constitute a weakness in that there is no standardization of pension administration, each county being more or less a law unto itself. Some of the counties in Illinois have a very strict and efficient administration of this relief; others are very haphazard and casual in regard to it.

Many of the blind pension acts of the country have a provision for treatment and operation embodied in them, while that of Illinois has not. From the standpoint of prevention of blindness we feel that this is the main weakness of the Illinois law and should be corrected. The Colorado law says: "In cases where the blindness of the applicant can be removed, wholly or substantially, by medical or surgical treatment, relief shall consist only of payment of necessary expenses of such treatment."

The Idaho law says: "If in the examination of the qualifications of any person filing a claim for relief, or having a place on the list of those receiving benefit hereunder, it shall be determined upon the evidence of a registered physician qualified as set forth in the preceding section, that any person or persons making such claim, or then on such list, might have such disability benefited or removed by proper surgical operation, or medical treatment, and if such person entitled to such relief files his consent in writing thereto, then the probate judge may order expended for the purpose of such surgical operation or medical treatment all or any portion of the relief, which he may award to such person for one year under the provisions of this article."

The New Hampshire law says: "If the county commissioners, in the examination of the qualifications of any person filing a claim for relief hereunder, or who may have been allowed such relief, shall determine upon the evidence of a registered physician and surgeon that the person might have such disability benefited or removed by

proper surgical operation or medical treatment, and he files his consent in writing thereto, the county commissioners may expend for the purpose of such operation or treatment all or any portion of the relief which they might award to him for one year."

The Missouri law says: "The examining oculist shall state in his certificate (1) the amount of vision in each eye, (2) the cause of blindness, (3) the possibility of curing same by treatment or operation, (4) the physical and mental condition of applicant and such other matter as may be deemed by the commission of value in dealing with matters coming within its authority. No person shall be entitled to the benefits of this act who shall refuse to submit to treatment or operation to effect a cure when recommended by the examining oculist and approved by the commission; but upon submission to such treatment or operation if unsuccessful the pension of applicant, otherwise entitled thereto, shall be paid as in other cases."

The Ohio law says: "If the board of county commissioners, in the examination of the qualifications of any person filing a claim for relief hereunder, or who may have been allowed relief by such board shall determine upon the evidence of a registered physician and surgeon, that any person or persons making such claims or then on such list might have his disability benefited or removed by proper surgical operation or medical treatment, and such person entitled to such relief files his consent in writing thereto, then the board of county commissioners may expend for the purpose of such surgical operation or medical treatment all or any portion of the relief which the board of county commissioners may award to such person for one year under the provisions of this act; and in such case the warrant of the county auditor shall be issued direct to the person entitled to pay for such surgical operation or medical treatment upon the certificate of the board of county commissioners, instead of being payable quarterly to the person entitled to such relief."

One of the most difficult problems faced in the extension of relief to the blind is the problem, "Who shall be considered blind?" A definition of blindness simple enough to be understood by the general practitioner and the applicant, definite enough and technical enough to protect the interests of the taxpayers, is hard to formulate. Furthermore, it must be flexible enough to meet certain conditions that may exist and can only be correctly determined and fairly evaluated by a person expert in ophthalmology.

The Illinois statute contains no definition of blindness. However, the Attorney General has recently made a ruling as follows: "Everything considered, it would appear to me that a person is blind when his eyesight is so deficient that even by the aid of eye glasses he cannot do the ordinary things of life such as reading ordinary print. It is difficult to determine just at what point of deficiency actual blindness sets in, and unless there appears to be fraud, collusion or prejudice existing on the part of the examiner and the applicant, the examiner's judgment should be final."

In considering all questions of compensation for the affliction of blindness it becomes necessary to state in some definite terms what shall constitute blindness within the meaning of the law. From a scientific standpoint that eye is blind that has lost the power to perceive light of any intensity. This is notated as zero in vision. But for practical purposes such a definition could not be applicable for we know that there are varying degrees of imperfect vision from the degree of total or zero blindness up to the state of useful vision. This constitutes the difficulty and accounts for the widely varying and inaccurate descriptions and definitions of blindness that are found in our state statutes as well as in scientific literature. As illustrations we quote from "Blind relief laws—their theory and practice," by Robert B. Irwin and Evelyn C. McKay, of the American Foundation for the Blind.

"Maine defines blindness as 'less than one-tenth vision' (6/60 Snellen). In

Missouri blindness is defined as 'vision not greater than light perception'. Nebraska defines a blind person as one 'who is destitute of useful vision so as to be incapacitated for the performance of labor, rendering such a person incapable of earning a support'. Ohio, New Hampshire, Nevada, California and Idaho define a blind person as one who has a defect of vision incapacitating him to earn the necessities of life.

"The definition 'less than one-tenth vision' has not been entirely satisfactory in Maine. The certificate of blindness is made by a general practitioner, to whom 'one-tenth vision' has frequently but a vague significance. Perhaps, however, this vagueness in the one-tenth vision clause has given it its saving flexibility. The chief value of the clause is that it suggests to the examiner that something short of total blindness may make one eligible for this relief."

The Missouri law defines blindness as "vision not greater than light perception". Light perception is defined to mean "not more vision than is sufficient only to distinguish light from darkness and recognize the motion (not the form) of the hand of the examiner at a distance not greater than one foot from the eye".

Mr. Lewis H. Carris (managing director of the National Society for the Prevention of Blindness) says in one of his reports: "In general, it is considered expedient to call a person blind who has only one-tenth of visual acuity. But what about those of us who do not know what one-tenth of vision means, and how to measure sight. Then again, it is not sufficient to consider only the degree of vision;—the extent of the visual field is an element of highest importance, and there are other factors to consider as well. Is it necessary in censuses that each doubtful case be considered by a specialist with his complicated equipment in order to control these various standards?"

Mr. Carris quotes the following definition of blindness from the "Handbook on the welfare of the blind in England and Wales: "The Ministry of Health in circulars 681 and 780 explained the principles which they adopt in deciding whether a person is too blind to perform work for which eyesight is essential. Briefly, only visual factors can be taken into account and other bodily or mental infirmities should be disregarded. Where the acuity of vision (refractive error being corrected) is below one-twentieth of the normal (3/60 Snellen), the person may usually be regarded as blind. Where the acuity is better than 6/60 (Snellen), the presumption is that the person is not blind unless there are such counterbalancing visual conditions as great contraction of the field of vision, marked nystagmus, etc. The test to be applied is not whether a person is unable to pursue his ordinary occupation, or any particular occupation, but whether he is too blind to perform work for which eyesight is essential."

Most of the definitions embodied in the blind pension laws of this country are very vague, thus leaving to each individual examiner the problem of deciding the dividing line between sight and blindness.

The definition of blindness embodied in the Missouri law would seem to be too rigid and too severe as it does not take into account the industrially blind —a group of people who in many cases are in desperate need of relief.

Such definitions should be so worded as to make the law flexible enough to cover conditions and contingencies such as might be found by an examiner expert in ophthalmology. From 3/60 Snellen to 6/60 Snellen (rough test—counting fingers at from ten to twenty feet) might be a reasonably fair boundary between useful vision and dependency. This, however, should be variable, due consideration being given to condition of the fields and the character of the lesion that had affected the sight. In all cases it is assumed that the refraction is corrected with suitable glasses. This emphasizes the importance of having all such examinations made by an expert in the eye.

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UVEOPAROTITIS (HEERFORDT)

With case report

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The authors present an analytical tabulation of thirty cases of uveoparotitis reported in the literature, and record a personal case in which the disorder was associated with a rash on the legs resembling erythema nodosum and in which the symptoms, including a moderate rise of temperature, persisted for two years and ten months. The temperature finally subsided after withdrawal of a pleural effusion which had existed for one week. Examination and laboratory study as to the existence of tuberculosis were negative. Read before the Colorado Congress of Ophthalmology and Otolaryngology, August 1 and 2, 1930.

The cardinal signs of this comparatively rare affection are: (1) Iridocyclitis or uveitis, showing a great tendency to posterior synechiæ with copious pigmentation on the anterior lens capsule and the deep surface of the cornea. (2) Bilateral, almost painless, but marked swelling of the parotid glands; this swelling is subject to exacerbations, is long continued, and finally undergoes complete resolution. The gland never suppurates. (3) A low grade, chronic fever, especially manifest during the first half of the disease.

Of frequent, though not constant occurrence are: (1) Paralysis of the cranial nerves, particularly the seventh. (2) A prodromal rash resembling erythema nodosum, occurring especially on the front of the legs and lower thighs, but sometimes on the forearms. (3) A marked, continued dryness of the mouth. (4) A polyuria without sugar. (5) A prodromal malaise and sleepiness with frequent symptoms of gastric upset. (6) Paresthesias, and even pareses, which may be in other than the cranial nerves.

There seems to be no definite order of the appearance of the cardinal symptoms, but the similarity in cases thus far reported is such as to form a definite clinical picture.

The eye abnormalities include misty vision with more or less failure of sight; ciliary congestion; irregular or dilated pupils, often without accommodation to light; nodules in the iris; vitreous opacities of greater or less density; keratitis; sometimes optic neuritis or atrophy; narrowing of the palpebral fissure; pseudoptosis and glaucoma. In one case a cataract occurred due directly to the disease.

In one patient reported by Dr. Coombs, the disease proved fatal after cerebral symptoms with delirium. This same case developed a mastitis; this is the only case where this feature has been recorded. In a few instances the lacrimal glands were affected, and in some cases the submaxillaries were slightly swollen.

Case report

The case which the authors herewith present has now been under their observation for five and one-half years. A female aged forty-three years, mother of two healthy children, thought she had had influenza early in November, 1924. This had been followed by malaise, drowsiness, dry mouth, pains in the ankles and knees, with a rash on the front of the legs resembling erythema nodosum and persisting for three weeks.

Two months later, she began to notice swelling of both parotids at mealtime, which would gradually subside and then recur at the next meal. She had had mumps on both sides as a child, and mumps was not prevalent where she lived at the time of this present illness. After two weeks of intermittent swelling, her parotids remained large, each the size of a man's fist, rather hard, nodular, and painless. At intervals there was noticeable variation in the enlargement. It was two years

and ten months from the beginning of her illness before these returned to normal size and all symptoms became quiescent. This is the longest duration yet recorded.

Her temperature, which showed a tendency to become slightly higher in the afternoon, ranged about 100° F. and persisted for ten months from the beginning of her illness. It subsided following the withdrawal of two liters of straw-colored pleural effusion from the left side; this effusion had followed a pleurisy of one week. In view of the controversy as to whether or not tuberculosis is the causative factor in these cases, the pleural effusion here reported is of significance. It must be added, however, that in her case the Pirquet test, repeated x-rays, and the findings of two competent internists were all negative as to tuberculosis. This study included a bacteriologist's report, both on smears and on animal inoculations. We recognize, however, that tuberculosis can cause marked eye changes without living bacteria being demonstrable. Wassermann test was negative, so were tests for thyroid disturbance. A differential blood count and a blood culture were normal. The spleen was not enlarged. There was polyuria, but, other than stated, the kidneys, heart, and lungs were negative.

During the early part of her illness, she had marked signs of sphenoiditis, including a mucopurulent discharge from these sinuses, and a glazed, parched epipharynx. This has, at the present writing, entirely cleared up. At the height of it, however, the patient complained bitterly of vertigo and suboccipital pain. Her blood pressure was then 110/75.

As to the eye symptoms, beginning two months after the onset of prodromes, (and coincidental with her parotid symptoms), the vision of the left eye became blurred and grew rapidly worse. In two weeks, her right eye was similarly affected. There was pericorneal injection of both eyes with thickened, discolored irides and irregular, sluggish pupils. The pupils did not dilate except as a result of medication, and accommodation was not lost. The lenses possibly were somewhat swollen, however, as manifested by one diopter of myopia which persisted for five months. We say this knowing full well that change in the index of refraction of the media, or exudate in the ciliary body, might also be etiologic.

With the slit-lamp, one could see a stippling of the corneæ with many rust-like deposits on their posterior surfaces, especially in the lower halves. There was no demonstrable exudate in the anterior chamber, and at no time during the disease were there any nodules in either iris. At the areas of posterior synechiæ, two on the right and three on the left, the anterior lens capsule was considerably thickened. Numerous pigment patches were scattered over the anterior lens surfaces, in places resembling in arrangement the frost on a window pane. In other places, the capsule was clear enough so that the anterior vertical Y and the posterior inverted Y with clear interval in the lens center could distinctly be made out. Also, in the right, we could distinguish the snowflake cluster of embryonic cells just behind the anterior or vertical Y. The portiers of the anterior vitreous could be made out, although the ophthalmoscope showed fine opacities scattered throughout the vitreous. The edges of the discs were slightly blurred from a mild chorioretinitis. At the height of the affection, vision was reduced to 20/65 each eye with correction, but recovered finally to 20/20 — 1 in the right eye and 20/20 in the left. The fields of vision were at all times full and there were no scotomata, either for white or for color, although the general acuity of vision was considerably affected as indicated above.

The patient at no time complained of gastrointestinal symptoms; she had no paralyses, paresthesias, or neuritis, and there was no perversion of taste, smell, or hearing.

The lacrimal glands in this case were not affected, but, for two months at the height of the trouble, the submaxillary salivary glands were mildly swollen and hard.

The report on a microscopic examination of the secretion of the right parotid was "micrococcus catarrhalis, pneumococcus, and long-chained streptococcus". In this connection, it is important to report that smears and cultures from the left parotid secretion on two occasions revealed no pus cells and no organisms. This point is significant, as the left parotid appeared as seriously involved as the right.

Two years after subsidence of symptoms, the slit-lamp revealed an absence of atrophic areas in either iris, a disappearance of the "rust specks" from the posterior surface of the corneæ, and a marked lessening of the pigmented areas on the anterior lens capsules. The adhesions persisted, but otherwise the pupils were active, and the vision as previously stated was O.D. 20/20—1, and O.S. 20/20. Tonometric reading O.D. 30, O.S. 26 mm. (Schiøtz). During the trouble, the patient spent one year on a ranch in the mountains "for her health"; since all symptoms have subsided she has felt unusually well.

Appended to this article is an analytical tabulation of thirty cases of uveoparotitis. Some of the few other cases reported in the literature were not convincing enough to be included. Anyone especially interested may go carefully over our tabulation, but some of the things it brings out should be briefly stated here. Of the thirty cases, ten were males and twenty females. The ages range from eleven years to sixty-one years. Nine of the cases are between the ages of ten and twenty, ten are between twenty and thirty, three between thirty and forty, five between forty and fifty, two between fifty and sixty, and one over sixty. Among the thirty cases one death is reported, one case developed blindness from optic atrophy, and in one a cataract formed. Twelve of the cases showed facial paralysis. In fifteen of the reports, no mention is made of fever, while in the other fifteen cases, fourteen had long continued fever of low grade, and the other one had no elevation of temperature "in the later stages of the disease". Seven of the reports specifically mention a rash similar to that described in our case. The duration of the attacks has been variously reported as from two months to two years and ten months, with an average of perhaps eight to fourteen months.

The first recognition given in the literature to the class of cases under discussion was by Heerfordt, who in 1909 reported three cases observed in the city hospital at Copenhagen during 1905 and 1906. He also discussed two cases of similar symptoms described in the literature, one in 1889 and one in 1903. In 1928, Hamburger and Schaffer called attention to the fact that most of the existing reports have come from Scandinavia and Germany, while six have occurred in Great Britain and only one has appeared in the American literature. Certainly, the condition must be more prevalent than has been hitherto recognized.

As to etiology, the greatest diversity of opinion exists. Heerfordt thought the cases were atypical mumps. Mohr ascribed the lesions to syphilis. One author mentions beri-beri as a cause. Bang (1918) suggested pseudoleukemia, although the blood picture has been normal in all the cases where the blood examination has been reported. In our case the blood was normal and the spleen was not enlarged.

Because of similarity in the character of the paralysis when it occurs, diphtheria has been considered as a cause. Again, uveoparotitis has been thought by several of our best informed men to be a manifestation of Mikulicz' syndrome; although Schaffer and Jacobsen, as well as Gjessing (1918), after thorough consideration, took an opposite view. Fuchs (1918) believed that the two affections, uveoparotitis and Mikulicz' disease, could not be sharply separated. Weve (1918) believed Mikulicz' disease to be either tuberculosis, syphilis, or pseudoleukemia, each of which could be excluded in the case of uveoparotitis under discussion.

G. Parker, of Bristol, concludes that "Mikulicz' disease need not detain us because the conditions present such a different picture". Lehmann, in his

TABLE OF CASES IN THE LITERATURE

No.	Author	Date	Sex and age	Prodromes	Duration	Eyes	Parotids	Tempera-ture	Nerve symptoms	Skin
1	Daireaux and Pechin	1889	M.22			Iritis, keratitis	Double swelling			
2	Collomb	1903	M.29	Dyspepsia		Iridocyclitis	Double swelling			
3	Heerfordt	1909	M.11	Gastritis some weeks	4.5 mo.	Iridocyclitis, optic neuritis	Double swelling	Low fever for months		
4	Heerfordt	1909	M.14	Gastritis some weeks	2 mo.	Iridocyclitis	Double swelling	Slight	Facial paralysis, dysphagia	
5	Heerfordt	1909	M.27	Gastritis some weeks	2 mo.	Iridocyclitis	Double swelling	Slight	Facial paralysis, dysphagia, paresthesia, paralysis vocal cord	
6	Brewerton	1910	M.17	Urticaria 5 days	4 mo.	Failure of vision, ciliary congestion, keratitis	Double swelling Hard, nodular	Fever in early stage		Erythema nodosum
7	Schou	1914	M.13		Months	Iridocyclitis, vitreous opacity	Double swelling lacrimal glands	Fever for months		Swelling dorsum of hands
8	Kuhlefelt	1916	F. 21			Iridocyclitis, neuroretinitis	Double swelling	Occasional fever		
9	Mackay	1917	F. 30	Gastritis 2 weeks	2 mo.	Ciliary congestion, no accommodation, no reaction to light	Double swelling	Fever at first		
10	Fuchs	1918	Girl	Gastrointestinal	9 mo.	Acute iridocyclitis	Double parotitis, lacrimal glands swollen			
11	Fuchs	1918	F. 47	Muscular rheumatism	Months	Iridocyclitis, vitreous exudate				
12	Fuchs	1918	F. 40		Months					

TABLE OF CASES IN THE LITERATURE (*continued*)

No.	Author	Date	Sex and age	Prodromes	Duration	Eyes	Parotids	Temperature	Nerve Symptoms	Skin
13	Leeksma	1918	M.14		Months	Iridocyclitis, optic neuritis	Double swelling	Brief low fever		
14	Leeksma	1918	F. 28		Few months	Iridocyclitis with vitreous opacities	Double swelling		Facial palsy	
15	Leeksma	1918	F. 15	None	Months	Iridocyclitis	Double swelling		Facial palsy	
16	Thompson	1919	F. 18			Iridocyclitis	Double swelling		Facial palsy	
17	T. Mohr	1920	F. 34			Iridocyclitis, keratitis	Double swelling			Evidence of syphilis
18	Feiling and Viner	1921	F. 21	Malaise 1 mo.	4 mo.	Ciliary congestion, pupils dilated, no reaction to light, no accommodation, glaucoma	Double swelling		Early facial paralysis, no knee jerks, no ankle jerks, paresthesias	Erythema
19	Maitland Ramsay	1921	F. 31	Edema 6 weeks	Some months	Ciliary congestion, loss of vision, optic atrophy	Double swelling		Paralysis face and soft palate	
20	B. H. Jackson	1922	F. 27	Paresthesias	19 mo.	Corneal deposits, vitreous opacities, iridocyclitis, cataract	Double swelling, lacrimal glands swollen		Facial paralysis, paresthesias	
21	Schall	1922	F. 24	None	8 mo.	Retinochoroiditis, corneal deposits	Double swelling	Fever for months		
22	MacBride	1923	F. 43	Abdominal pain	9 mo.	Iridocyclitis	Double swelling	Remittent, weekly fever	Facial paralysis, paresis legs and arms, dysphagia, some deafness	

TABLE OF CASES IN THE LITERATURE (*continued*)

No.	Author	Date	Sex and age	Prodromes	Duration	Eyes	Parotids	Temperature	Nerve symptoms	Skin
23	Berg	1923	F. 23			Iridocyclitis, keratitis, failure of vision	Double swelling late			
24	Critchley and Phillips	1924	F. 51		2 yrs.	Pupils sluggish ptosis, no accommodation	Double, hard swelling	Slight fever	Facial paralysis	
25	Attland	1924	M. 40	Arthritis, myocarditis		Iridocyclitis, glaucoma	Double swelling	Slight fever	Facial paralysis	Eczematous rash
26	Coombs, Rogers and Bodman	1926	F. 61	Gastritis 18 mo.	10 mo.	Irregular pupil, dacryocystitis	Double swelling	None in late stage	Paresis legs and arms, neuritis, paresthesia, delirium	Erythema, mastitis, death
27	Parker	1926	F. 55		3 mo.	Pupils sluggish no accommodation, ptosis, narrowed fissure	Double, nodular swelling		Facial palsy	Papular rash
28	McCulloch	1927	F. 27	None		Iridocyclitis, vitreous opacities, iris nodules, corneal deposits	Double swelling, also submaxillary	None noted	Double facial paralysis	
29	Hamburger and Schaffer	1928	M. 12	Headache, fever	Few months	Iridocyclitis	Double swelling	Febrile		
30	Merrill and Oaks	1930	F. 43	2 months malaise, arthritis, skin rash on legs, dry mouth	2 yrs. and 10 mo.	Iridocyclitis, corneal deposits, transitory swelling of the lens, retinochoroiditis	Double swelling, submaxillaries involved slightly	Slight fever 10 mo.	No involvement	Erythema nodosum, pleural effusion, sphenoiditis

paper, describes in detail how a number of points differentiate this affection from Mikulicz' disease of the lacrimal and salivary glands. Mackay, of Edinburgh, speaking of his case, says: "The case was quite unlike either Parinaud's or Mikulicz' disease". Berg, Schmalfuss, and others take the position that Mikulicz's disease is really tuberculosis.

Mouth infection was believed by Viner to be responsible for the symptoms in his case, but our review of other cases makes us reasonably certain that oral sepsis was incidental only.

Emil Schall and several others have taken the position that tuberculosis is the possible cause of these cases. It is to be noted, however, that recognized tests for tuberculosis are often negative. Then, too, it is difficult to associate paralysis, such as these cases have, with a tuberculous origin. They would appear more likely from some specific general toxin as in diphtheria. Diphtheria can be ruled out by the absence of throat symptoms in the whole series of cases.

Hamburger and Schaffer remark that "the tubercle bacillus has not been isolated in this group of cases as it has been in the Mikulicz symptom complex". They conclude thus: "It is certain that tuberculosis is not the sole etiologic agent."

The fact that syphilis was present in Mohr's case indicates little, in view of the fact that in a great proportion of reported cases the Wassermann test and other signs of syphilis were negative. Critchley, Phillips, and Brist, in speaking of uveoparotitis, say: "Syphilis seems not to have any part in this disease, neither does previous occurrence of mumps."

It will be remembered that when Heerfordt first reported the condition he believed mumps to be the cause. Weve and Lehmann since then have held the same view. Against this view, however, are the following facts. In twenty-nine of the thirty cases we have tabulated, there was no epidemic of mumps prevalent. Most of the cases also reported having previously had mumps, which confers an immunity. No orchitis or ovarian involvement has been noted in any case, although Emil Schall especially examined for the latter. Orchitis, should it occur, would be quite evident. Uveoparotitis, so far as is known, is in no way contagious. Of importance, too, are the chronicity of these cases and the fact that in several instances the facial paralysis, often bilateral, as well as the iridocyclitis has definitely preceded any enlargement of the parotids. Facial paralysis occurring in connection with mumps is unilateral and always follows the parotitis.

Little need be said as to therapy. It is symptomatic; atropin, however, is always indicated. The authors believe the disease will resolve spontaneously and that the best which may be said of x-ray, tuberculin, and other suggested treatments is that in selected cases they may have some influence in slightly hastening this resolution.

In conclusion, we offer the following observation. This group of cases forms a well defined entity. A further search for evidence of tuberculosis should be made, but, in the opinion of the authors, the weight of evidence to date points, in so far as etiology is concerned, to some specific virus, bacterium or agent as yet unknown.

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EYE INJURIES IN EPILEPTICS

Three case reports

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The author reports three cases of eye injury occurring during epileptic seizures, two of them resulting from trauma while falling. One patient struck an upturned stick and avulsion of an eye occurred. Another patient fell into a cholla plant, the spines of which passed through the lids and injured the eyeballs. The third patient, a week after cataract extraction, caused the wound to open; and deep pustuliform keratitis developed secondarily. Read at a meeting of the Los Angeles Ophthalmic Society, April 16, 1930.

Epilepsy, an affection of the nervous system characterized by attacks of unconsciousness with or without convulsions, is not usually associated with ocular disorders. The ophthalmic literature regarding epilepsy is largely concerned with a possible association with errors of refraction and with muscle imbalance. There is also an occasional case report of the precipitation of an attack of epilepsy following certain ocular operations or the instillation of eye medicines.

The literature is practically silent on the subject of eye injuries in patients afflicted with this malady. The following three case reports seem to the writer of sufficient rarity to warrant recording them.

Case 1: A female, aged forty years, while passing through a gateway was seized with an epileptic attack. In falling, her foot tipped a stick on end. The stick was two and one-half feet in length and the thickness of a finger. The upturned end of the stick entered the right orbit. Examination of the patient showed the eyeball to be completely avulsed and lying upon the cheek. The only muscle attachment was a few strands of the inferior rectus. A narrow band of the inferior conjunctiva remained intact. The superior lid presented a slight skin abrasion, but no other lid disturbance could be found. The inferior rectus and band of conjunctiva were severed. There was an uneventful recovery. The healed orbital cavity was moderately shallow but accommodated a prothesis very well.

Examination of the globe showed it to be intact, with muscles and the conjunctiva stripped off. The eyeball was firm and presented a fully formed an-

terior chamber. The optic nerve remained attached and extended 4 to 5 mm. back of the globe. The sheath was retracted, leaving exposed the frayed-out end of the nerve. The globe was sent to the laboratory for examination, but unfortunately was lost.

The writer has been unable to find in the literature a single reference to a parallel case. Quite a number of cases of luxation of the eyeball have been discussed. Fewer evulsions and a distinctly limited number of avulsions have been reported. Not any, however, occurred in epileptics. Luxation may occur spontaneously, but trauma is essential to produce evulsion and avulsion.

Rollet and Aurand[1] found by experiment that in avulsion the optic nerve was usually severed either at the lamina cribrosa or the orbital opening. Williams[2] explains the action of a linear object entering the orbit and causing an avulsion on the principle of a lever and fulcrum—the orbital margin being the fulcrum. Applying these principles in my case, the end of the stick must have actually severed the nerve and then acted as lever and fulcrum.

In Williams' case the avulsed eye was found upon the cheek attached to the external rectus. The patient was injured by a protruding gas pipe. The globe was intact with seven millimeters of the optic nerve attached. Dehn,[3] Fulton,[4] and Lundsgaard[5] each observed cases of self-enucleation by the insane or enucleation by fellow patients. In Lundsgaard's case one eye was found on the floor; the other eye was attached to the internal rectus.

Salzmann[6] observed a case of avulsion of the optic nerve in which there was a deep hole at the site of the disc. In Zschau's[7] patient the avulsed eyeball was attached by the external rectus. Stirling's[8] case was produced by a fall upon a crowbar. Several cases are reported due to injury by keys. Two cases were reported in drunken patients, one falling against a key. Hardy's[9] patient fell into a hedge; only the external rectus and inferior oblique muscles were attached. Toussaint and Weekers[10] report a traumatic avulsion, the patient being injured by a door handle on a passenger car; three centimeters of the optic nerve remained attached.

Case 2: A male, aged thirty-eight years, subject to epilepsy, while out on the desert was seized with an attack, falling face foremost into a cholla.* The appearance can be observed in the accompanying photograph (figure 1).

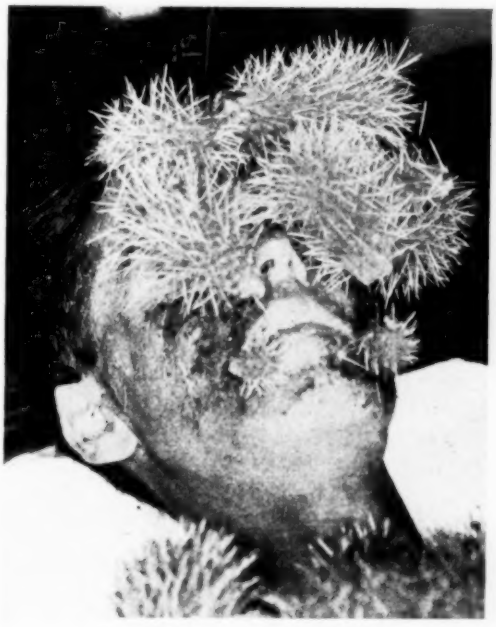

Fig. 1 (Harbridge). Appearance of epileptic who had fallen into a cholla cactus plant. (For personal reasons, a photograph of the patient could not be obtained, but the condition as here "staged" faithfully reproduces the original position of the burrs and the general appearance of the patient.)

Two bunches of cholla attached themselves in the right orbital area, three in the region of the left orbital area, and several on the right shoulder. There were many scattered spines in the chest region and right side of the mouth. In this condition he was brought to the hospital. Under anesthesia the burrs and spines were removed. The right eye showed numerous spines attached

* Pronounced "chollyah."

to the lids, two perforating the lids and causing abrasions of the cornea above the center. The left eyelid also showed numerous spines, three perforating the lid. One caused a lineal abrasion of the cornea, and the other two perforated the cornea, iris and capsule of the lens, down and out from the pupillary border. Blood stain suffused the anterior chamber; this together with the corneal haze made examination of the fundus impossible. Vision was of large objects.

Within two weeks there was a marked clearing of the cornea and anterior chamber. The iris had become attached to the capsule of the lens at the two points of perforation. Opposite one of these points, under the capsule, was a pin-point stellate opacity in the cortex of the lens. Vision = 6/12. In time the lens opacity cleared materially and was clearly observable only with the slit-lamp. It was thought that conditions had become stationary. One year later, however, the lens had become opaque except for a narrow clear ring in the upper nasal quadrant. Two years later the lens was entirely cataractous. In the lower outer quadrant there was apparently some lens absorption, the overlying capsule being shriveled or thrown into slight folds. Near the pupillary border of the iris down and out were two deeply pigmented spots indicating the points at which the spines injured the iris. Three years later there was definite evidence of absorption of the lens material.

Fig. 2 (Harbridge). A cholla cactus in its normal habitat.

To those who may be unfamiliar with the cholla, a species of cactus, the accompanying illustration (figure 2) will indicate the character of this desert plant. The burrs are easily separated from the main trunk and are covered with very sharp spines. The sides of the spines are covered with very sharp subspines pointed in the reverse direction, thus producing a fish-hook or rasp effect. Owing to this arrangement they are extracted from tissue with great difficulty. So sharp are these spines that they can perforate shoe leather with perfect ease. In the above case it was particularly fortunate that the plant was fresh and green. If the spines had been dry there would have been great danger of not being able to remove the ends which had perforated the cornea. The writer has been unable to find in the literature any reference to a similar accident to an epileptic.

Case 3: A male, aged fifty-four years, upon examination presented a mature cataract in the left eye and an immature cataract in the right.

The family history revealed the following facts: one grandfather blind with cataract, unoperated; mother operated for binocular cataract when fifty-six years of age; father blind fourteen years, very likely due to cataract, unoperated; and one brother operated for cataract at age of sixty years. A second brother was operated for binocular cataract at fifty-three years of age; one year later he was drowned in a bath tub during an epileptic attack. A third brother is a religious maniac in an asylum.

A preliminary iridectomy was performed on the **left** eye and was followed three weeks later by an expression of the lens. During these procedures it was noted that the patient was extremely nervous, but not in any measure unruly. Three days later the eye was dressed because of a moderate edema of the skin over the region of the antrum. This edema was thought at the time to have been due to the pressure of the dressing. The eye wound

was found in excellent condition, with the anterior chamber fully formed, straight pillars to the coloboma and a good black pupil.

On the eighth day it was noted that the wound was leaking and the anterior chamber not entirely full. Owing to the extreme nervousness of the patient he was propped up with pillows. On the ninth day the wound reopened. There was a very profuse discharge of clear mucus, not vitreous. The upper lid and the conjunctiva were markedly edematous. The clear pinkish conjunctiva was very prominent, protruding between the lids. Deep in the cornea was a circumscribed infiltration occupying the pupillary area; near the periphery were two smaller points. On the tenth day the shallow anterior chamber was almost filled with a reddish brown exudate. By the twelfth day, in spite of active treatment, the wound gaped more and the anterior chamber was filled with exudate, the lower iris being overlaid with hemorrhage. The cornea infiltration had increased in density.

With a Graefe knife the original incision, which was clogged with exudate, was freely laid open; with forceps and wire loop a tough tenacious exudate was removed, and the chamber was washed with a normal saline solution. The iris was markedly inflamed, its natural texture blurred. It did not take anesthesia well and was quite sensitive to touch by the instruments. After a very prolonged convalescence (the patient being discharged from the hospital on the twenty-third day), the wound healed with a broad band of scar tissue at the point of the original limbal incision. The iris was caught in the angle of the wound, drawing the pupil up. Finally after many weeks the cornea cleared. Not at any time during the entire course of this complication did the patient experience any disquieting pain, yet the eye was exceedingly sensitive to palpation. He did, however, complain of "shaking attacks" and a loss of memory during intervals at night. Repeated examination of smears revealed no pathological bacteria.

During the succeeding year many vitreous opacities and string-like shreds which were present gradually became less noticeable. With correction the patient finally obtained vision of 6/12. Shortly after leaving the hospital, he had an attack of shaking and unconsciousness during the night, which lasted about thirty minutes. Two months later he had a second attack which was followed about three months later by a third. Two days after he had a fourth seizure. During these attacks, which always occurred at night, he frothed at the mouth and injured his tongue. He has now been free from these seizures up to the present time. His attending physician diagnosed the condition as epilepsy.

It is reasonable to presume that the shaking attacks and loss of consciousness following the cataract expression were epileptic. The convulsive seizures reopened the wound and marred the otherwise perfect results of a cataract operation. The points of particular interest are the blood stained exudate in the anterior chamber, the very markedly edematous but not hyperemic conjunctiva, and the very profuse clear sticky mucous discharge, free from pathologic bacteria even after repeated examination. The edema and mucous discharge continued for a considerable time after the closure of the wound. The corneal involvement seems to answer to the description of Fuchs's[11] deep pustuliform keratitis. It was many weeks in finally clearing.

Fuchs describes deep pustuliform keratitis as a rare form of corneal inflammation characterized by yellow pustular points in the posterior layers of the cornea in the pupillary area. He reports sixteen cases with anatomic findings in four eyes. There is always an accompanying severe iritis. The iris is swollen and discolored.

The pupillary area is filled with a dense membranous exudate. No pus bacteria were found. The inflammation starts in the iris, is of slow course, and

affects chiefly men of advanced years. It leads to impaired vision or blindness. There is no tendency toward purulent disintegration, and after a very long convalescence the infiltration absorbs.

On October 25, 1929, a preliminary iridectomy was done on the right eye. The lens was expressed Feb. 12, 1930, with an uneventful recovery. Profiting by the previous experience every precaution was exercised. The gastrointestinal tract was guarded in every way. He was kept well under the influence of potassium bromide. Up to the present writing he has had no further attacks of epilepsy.

The writer has been unable to find in the literature available to him a parallel case. Ball[12], in his textbook, makes reference to Power's statement of the occurrence of an epileptic seizure during a cataract expression. Kindermann[13] observed epilepsy in a patient three years after the removal of an eye. He cut into the orbit and found the end of the optic nerve attached to a piece of the sclera and choroid; after removal the attacks ceased. Bride[14] precipitated an epileptic attack in a glaucoma patient by the use of eserin solution; on stopping the drug the attacks ceased. Eleven days later eserin again produced a recurrence.

Goodrich building.

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PSEUDOGLIOMA, WITH ESPECIAL REFERENCE TO THE TYPE ASSOCIATED WITH REMAINS OF THE TUNICA VASCULOSA LENTIS

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Conditions which may create uncertainty as to the possible presence of retinoblastoma within the age limit characteristic of that intraocular tumor (the first three years of life) include remains of the vascular tunic of the lens, retinal detachment, cyclitic membrane, tuberculous choroiditis and uveitis, metastatic inflammation, and Coats's disease. The differential diagnosis is reviewed. A personal case of remains of the vascular tunic is described, and a similar case from the practice of another surgeon is described and illustrated.

Pseudoglioma is a term of convenience, for a group of conditions simulating glioma. As glioma is a tumor found only during the first three years of life, the term includes only those conditions found in childhood and confused with glioma because of the peculiar reflex from the pupil known as the amaurotic cat's eye of Beer.

Other conditions with this reflex are remains of the tunica vasculosa lentis, retinal detachment, cyclitic membranes, tuberculous choroiditis and uveitis, metastatic inflammations, and, finally, the rarest of the entire group, Coats's disease.

Survey of the records of any large eye hospital for a period of years will show a number of enucleations for supposed glioma that were of blind eyes from one of the causes included above. In one group of twenty-four enucleations at Moorfields, seven eyes were found to contain pseudoglioma. That a careful diagnosis was made in each case cannot be doubted and, without changing the rule which prescribes removal of a blind eye with a doubtful diagnosis, it can be said that such a perplexing diagnostic question invites the interest of everyone.

The rule for enucleation of blind eyes, just mentioned, is the result of the collective experience of the profession for many years, and is especially to be followed in doubtful cases of small children with suspected glioma, as delay in such cases cannot be permitted. With older patients, there is greater opportunity for examination, the history is usually obtainable, and the experience of the patient himself is a great aid.

Probably the first important sign of true glioma is the mass in the vitreous chamber, its peculiar color, and the vessels running over it. It is distinctly behind the lens, which is itself transparent, and the mass can usually be best examined by the naked eye or with the loupe, while strong light is projected into the dilated pupil from the side. The iris may have lost its details, its color may be dulled, and the pupil does not dilate and contract like a normal pupil.

In striking contrast with this picture, vessels still carrying blood may be seen on the posterior lens surface; or some glimpse of hyaloid artery remains or of the canal of Cloquet may furnish a very suggestive hint that the reflex comes from fetal remnants and not from a growth.

There are several cases in the literature with this feature, and the one inciting this article showed a small vessel just below and internal to the posterior pole of the lens. The color of these fetal remnants is not yellowish but dull white. The side of the face corresponding with the poorly developed eye may also be backward in its growth, and may show a decided difference if compared with the more advanced half of the face. There is little likeness between the two conditions if a careful examination can be made. Probably the easiest of the simulants of glioma to diagnose is this particular form of pseudoglioma. But, should inflammatory signs be added, or if the effects of difficult birth complicate the situation, there is still no reason for delaying the removal of the eye.

In the days before the ophthalmoscope, and especially before eye pathology became a reliable guide for the

difficult case, masses of exudate of tuberculous origin, from the vitreous or from the posterior surface of the iris or from the ciliary region, made a fair copy of malignancy when projected into or toward the pupil, both as to color and as to the presence of vessels in and on the mass. Secondary infection of the fungating mass sometimes produced a result not unlike the fungus hematoides of intraocular malignancy. Not a few cases of fungoid malignancy reported cured were tuberculous, and the cure was the eventual atrophy of the bulb which is the regular course of this disease. The general health of such cases often left little to be desired, and the local symptoms were often surprisingly few. Tuberculous eye disease in young persons is characterized by limited reaction and very little pain. Perforation of the eyeball takes place with little or no complaint by the small patient, and by contrast the amount of ciliary injection is so little as to excite comment.

In cases of eye tuberculosis so severe as to simulate glioma, the eye is ruined and an enucleation is advisable and often necessary. The type of tuberculous eye disease most likely to confuse the diagnosis and conduct of the case is that with a fungoid mass behind the lens, in which case the pupil and cornea may be unaltered and the ciliary injection minimal or absent. No hairs should be split in deciding what is to be done, for nothing is gained by keeping an eye which must eventually be a source of bother. There is but one factor to be considered upon the side of retention of the globe and this is the effect of the eye in shaping the growth of the orbit during the first few years of life.

Remains of the hyaloid artery are probably present in every person to a certain extent, but only when vessel remnants or a still functioning connection with the posterior surface of the lens exists will there be a difficulty. Where the vessel is attached to the lens, a splotch of white tissue may be found, or the canal of Cloquet may be shrouded in thick tissue of embryonal origin which returns the light entering the pupil, giving the observer a white reflex. Parts or most of the posterior vascular tunic may be plastered against the posterior lens surface, with functioning vessels visible to the naked eye through the enlarged pupil. This picture is not too complex for diagnosis unless inflammation or retinal detachment is added, in which case again the old rule to remove a blind eye with a doubtful diagnosis or severe pain is to be followed.

A goodly number of young children have been recorded for enucleation of a painful inflamed eye with a striking white reflex; no cause for the inflammatory condition being found, although in some of the very young children a birth injury was suspected. Detachment of the retina and choroid may shroud the remains of the hyaloid artery from the disc behind to the ciliary region in front, while a white membrane lies in contact with the posterior surface of the lens and gives the reflex which leads to enucleation.

Cyclitic membranes are difficult to diagnose unless one has been able to follow the eye from the beginning. In older children and adults, very dense membranes have been observed after punctured wounds of the eye. They may overlie the retina or may be in close contact with or just behind the lens.

Birth injuries may lead to phthisis bulbi, the posterior chamber being a shrivelled matting of the choroid and retina, a result of organized hemorrhage. These cases are not apt to confuse the observer, because some member of the family can provide the history. Syphilis in either adults or young children may produce a layer of tissue just behind the lens that will prevent a view of the interior and give a white reflex.

Metastasis during the course of infectious diseases may give a picture something like glioma, but the course of the case and the associated illness should make the condition clear. Cerebrospinal meningitis is especially prone to show a white cloud in the fundus, which may be followed by a similar de-

posit at the bottom of the anterior chamber. The eye continues irritable for a long time, and is useless so far as vision is concerned. Scarlet fever is another cause that has been reported, rarely, as producing a white mass within the eye with or without hypopyon. The rash was perhaps of short duration and escaped detection, so that complications could develop without the benefit of a reliable history, and, what is even worse, with an assumption of previous good health. In such an event, should metastasis occur before exfoliation gave the clue to the disease, the physician would be very much at a loss to explain the case. Fortunately, scarlet fever is not common in the early years during which glioma is found. Influenza is another disease which has been known to be accompanied by this symptom complex.

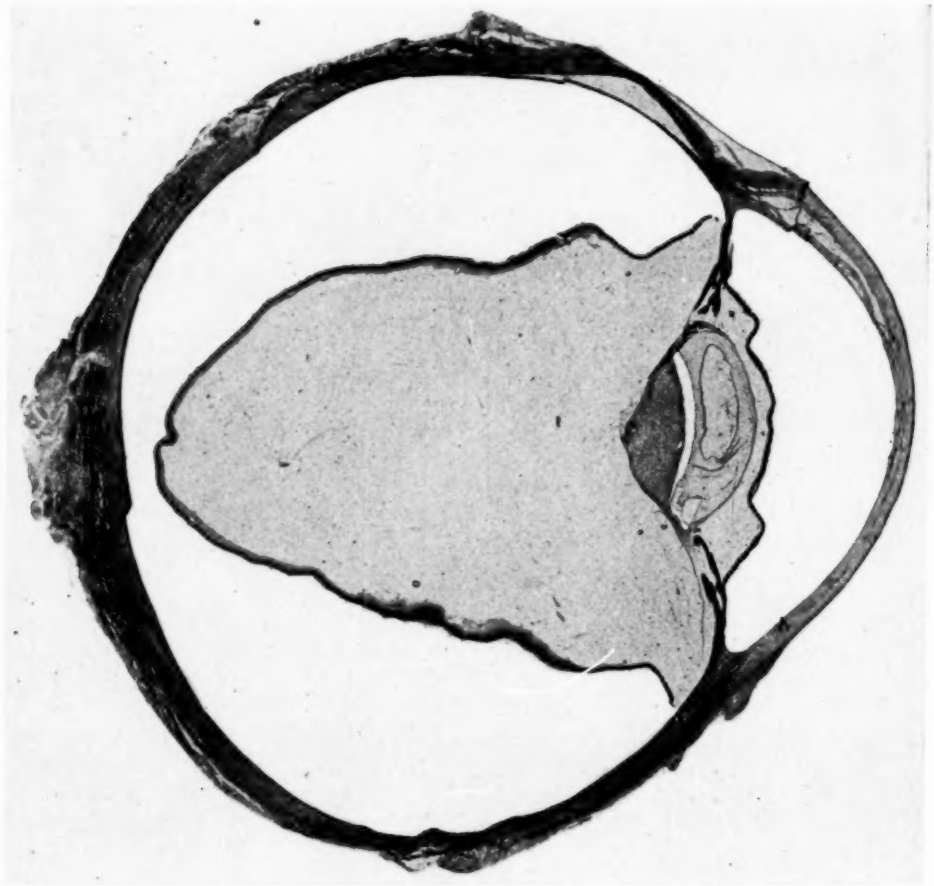
Coats's disease is featured by large woolly exudates located between the retina and choroid, and, if placed well forward, these may show plainly through the pupil. It is not often discovered at this stage of the disease, and, as it is later complicated by iritis, cataract, and glaucoma, a correct diagnosis is impossible late in the disease, even in young people. Enucleation is called for to relieve the pain, and the correct diagnosis may be made only by the pathologist. A few cases of this peculiar and very rare disease have been reported in children as young as two years, which is well within the period of glioma possibility.

Case report: The case calling these comparisons to mind is a five-months-old child of Polish parentage, with a history of breech delivery and fracture of the right arm. The left side of the face is less developed than the right, and the eyeball also is apparently smaller, but this may be due to moderate recession of the globe in the socket and a smaller palpebral fissure. At the age of three months, the mother noted a peculiar color in the left pupil and the child was taken to several clinics for examination, immediate removal of the eye being advised at each such consultation. When seen by the writer, there was nothing abnormal in the anterior segment of the eye and the request for details of the delivery was answered in a way that left one exactly where he had begun. The pupil responded well to strong light, and promptly to consensual stimulation. The pupil did not dilate widely even to atropin, as is often the case with congenital defects.

The white reflex originated at the back surface of the lens, while just internal to and below the posterior pole was a small red spot that was taken to be a blood vessel. The child has been kept under observation for sixteen months without the slightest change in any detail. We feel that our diagnosis of remains of the tunica vasculosa is justified, and we hope to be able to follow this case for several years, until the child is old enough to permit an examination by every device called for by the type of case. The entire posterior surface of the lens, as far as the moderately dilating pupil permits us to see, is covered with this white (not yellow) material that is applied to the lens like the backing of a mirror and gives no glance at all behind the lens.

Dr. Paganelli's case (see illustration): Not long ago, Dr. Paganelli had a case with a somewhat similar appearance. Through his courtesy a microscopic specimen was given me, and the accompanying enlargement of this eye section is worth studying in connection with the problem before us. The disc of connective tissue plastered against and indenting the posterior lens surface shows at one place a remnant of the hyaloid artery. No connection between this source of blood supply and that from the ciliary body remains, although in some cases such a connection has been seen both during life and with the microscope.

This disc of new tissue without surrounding signs of inflammation is surely connected with the original blood supply of the posterior vascular tunic, which has much to do with the growth of the lens. This posterior layer of the fetal tunic is especially rich in vessels which are connected laterally with the ciliary vessels; and branches from the



Pseudoglioma (Lloyd). Dr. Paganelli's case. Cross section of eye removed for pseudoglioma. Remnant of hyaloid artery, hypertrophied ciliary processes, large anterior chamber, small lens, and shallow angle at junction of iris with cornea and sclera are features plainly seen.

latter run forward to form the anterior vascular tunic in which the iris develops, and which often presents a similar malformation to the one seen in the case we are discussing. If the vessels of the anterior vascular tunic persist, the condition which we know as membrana pupillaris persistans is seen.

Since the slit-lamp has come into use, the frequency of remnants of this general type has been appreciated, and, although the posterior pole of the lens is not so easily examined, more or less of the former connection of the hyaloid artery with the posterior surface of the lens capsule can be seen in nearly every case. It is evident then that remains of the posterior vascular sheath exist more often than had formerly been realized. In this connection, we must remember the frequency with which posterior lenticonus is accompanied by hyaloid artery remnants; by persistent parts of the vascular sheath, even with functioning vessels; and by posterior polar opacities. Posterior lenticonus is indeed rare, as only about twenty-five cases have been recorded, but a disc of opaque tissue at the posterior pole, connected with the hyaloid artery behind and laterally by a thick membrane with the ciliary processes, is much more common and is usually called posterior polar cataract if seen in the living eye. In Dr. Paganelli's specimen here illustrated, the entire pupillary

area was covered and reflex absent.

The only difference between this type of posterior polar opacity and posterior lenticonus is that the latter retains translucency, which permits us to see the diagnostic feature so well described as resembling "a drop of oil" at the back of the lens. Whether there was a defect in the capsule in this case of pseudoglioma remains in doubt, but such a defect is found in cases of lenticonus. Some of the cases of pronounced opacity caused by persistence of the posterior vascular tunic show little or no capsule separating the mass of blood vessels and the densely opaque tissue from the more normal anterior part of the lens. In such cases the blood vessels run well forward into the lens itself, and connections laterally with the ciliary vessels may be evident microscopically and even to the ophthalmoscope. Posterior lenticonus is a limited bulge on the posterior lens aspect, not so large as the other type of defect.

It is also true that malformations of the eyes do not as a rule exist singly, and, despite the fact that the eye from which this section was made seemed smaller than its fellow during life, the section shows very clearly an early bupthalmus. A study of the angle of the anterior chamber explains this phase of the case, but it should remind us that a diagnosis of bupthalmus in the early months of life is only likely to be made when one eye remains normal to give a standard for comparison. Otherwise, the case advances far before the true state is recognized.

It is evident that remains of the posterior vascular tunic of the lens are not uncommon. They bear the same relation to the back of the lens as the interesting condition known as membrana pupillaris persistans bears to the anterior surface. Both are remnants of vascular tissues from which important structures develop, and which should thereupon disappear to permit light to pass from the external world toward the retina.

Eyes of small children with retinal detachment and a dense cyclitic membrane remain a source of irritation and are best removed unless a cause like syphilis can be found and controlled. Rarely, if ever, does a glioma exist in an eye with a pupil of normal reactions. The location of glioma is behind the lens and not in contact therewith, unless the case has been neglected; in which contingency there will be no question as to the proper procedure. If inflammatory signs are absent and the case is not complicated by trauma, it should be possible to diagnose the type of pseudoglioma caused by remains of the posterior vascular tunic. The findings of the pathologist in cases of enucleation justify the time and effort expended in separating this type of pseudoglioma from the other types, because the eye does not degenerate later nor become more painful and conspicuous.

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SPASTIC ENTROPION; A SIMPLE PROCEDURE FOR ITS CURE

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Through the needle used for preliminary novocain anesthetization, ninety-five percent alcohol is injected into the outer fibers of the orbicularis muscle near the margin of the lower lid. The method is simple, painless, and usually permanent in its effect.

Spastic entropion consists of a tonic contraction of the orbicularis palpebrarum muscle which characteristically produces an inturning of the lower lid, (rarely also the upper lid) with consequent irritation of the eye from the lashes. It usually develops in response to an irritative process in the eyeball, either traumatic (e.g. postoperative) or inflammatory, more particularly when photophobia is present. The lashes rubbing against the eye increase any inflammation already present, which in turn produces a greater amount of irritation with more reflex tendency to spastic contraction of the orbicularis muscle, and consequent increased irritation of the eye. A vicious circle is thus formed.

Seen postoperatively, it usually responds to the procedure of fastening the lid down with a strip of adhesive. When the entropion persists or recurs something further is necesary. The spasm of the orbicularis muscle may then assume a major rather than a minor rôle in the consideration of the problem at hand.

The great number of procedures advocated for the correction of spastic entropion speaks for the ineffectiveness of the majority of them. Some of them are quite complicated procedures and most of them require an additional trip to the operating room.

I wish to propose* a very simple, innocuous procedure designed to replace adhesive strapping and operation in the majority of cases, requiring little technical skill, no elaborate preparation, and no instruments other than two small syringes and one hypodermic needle. It consists of an injection of alcohol into the outer portion of the orbicularis muscle of the lower lid near its attachment to the lateral palpebral raphe, the idea being to produce a loss of function in about the lateral fourth of the muscle.

Procedure

The skin about the lateral canthus is painted with three percent iodine, and then 0.3 c.c. of a four percent solution of novocain is injected into the outer fibers of the orbicularis muscle extending a distance of about 4 to 5 mm. into the lower lid near the margin. Leaving the needle in place, the syringe is replaced with one containing 0.2 to 0.3 c.c. of ninety-five percent alcohol (not denatured), which is injected into the same site. There is usually no pain and no reaction, and the results are apparent a few hours after the injection (sometimes at once). It can be repeated in a few days, though this is seldom necessary.

Case reports

Case 1: A woman, eighty-six years of age, had had bilateral iridocyclitis following a cataract extraction, of six weeks' duration in the right eye, and three months in the left. Bilateral spastic entropion was controlled by adhesive strapping, but returned when adhesive was removed. Injection of alcohol gave immediate and permanent relief of the entropion, and the irritation of the eye cleared up soon afterward. In the other eye a similar condition existed and one week later an alcohol injection in this lid was similarly successful. This was my first case, done in

* I have been able to find in the American literature no reference to this type of procedure, but after submitting this article for publication I found that Elschnig[1] in 1922 and Dupuy-Dutemps[2] in 1926 had each reported a procedure utilizing the same principle. It is a method the technique of which should be brought to the attention of American ophthalmologists.

September, 1928. The lids have been normal ever since.

Case 2: A woman with trachoma of long standing had trichiasis, spastic entropion for the past three weeks, ulcer of the cornea for five weeks and subjectively, pain, photophobia, and lacrimation. Alcohol injection by the above technique. The next morning the eye was comfortable and patient had been able to sleep well; this she had not done for weeks.

Case 3: Following a cataract extraction two weeks previously, the patient developed a persistent bilateral spastic entropion. Both eyes were irritable and red. Alcohol was injected in the orbicularis of the operated side. Next day the lid was in normal position, and it has since remained so. The inflammation subsided, the eye being almost entirely white at the end of another week. The other lower lid still had a spastic entropion. Injection was here similarly effective in giving relief immediately.

Case 4: Bilateral spastic entropion, etiology unknown, of several months duration. The skin of the lower lid was very lax, and the orbicularis muscle could be seen to ride up over the lower tarsus, inverting the lid. An injection of alcohol was done temporally to determine if this type of entropion could be corrected by this procedure. It was twice repeated with no relief. This was an unsuitable case, an operative procedure being necessary in this type of spastic entropion.

Case 5: Two weeks after the extraction of a senile cataract the eye was still markedly red. There was also spastic entropion of the lower lid with much discharge about the lashes. An alcohol injection into the temporal fibers of the orbicularis muscle completely controlled the entropion, the eye quieting down soon afterward.

Several other cases similar to these have been treated likewise, all successfully.

Discussion

The justification for reporting this procedure lies in the fact that it is simple in technique, painless, effective, and permanent, and it can be done in the office. I have discontinued strapping the lid with adhesive for spastic entropion, substituting alcohol injection, because the adhesive does not stick when wet. For this reason the lid frequently stays in position only a short time and I am uncertain whether the position of the lid is corrected at all times between visits. The upper end of the adhesive may work loose and stick into the eye. The alcohol injection is less time-consuming than the cutting and application of adhesive, and is not disfiguring to the patient. This is a factor particularly where the eye needs no cover. The advantages over an operation are self-evident.

No sloughing has been noticed in any instance. In one case the injection was painful and some swelling of the lid followed, due presumably to the use of denatured alcohol. In none has any tendency to entropion been noticed subsequently.

Conclusion

(1) Novocain-alcohol injection for spastic entropion is a simple, painless, effective, and permanent method of relieving this annoying and sometimes serious condition. (2) It was ineffective in one instance, case four above, in which the tissues of the lower lid were very loose, there being an excess of skin, with the orbicularis muscle riding up over the tarsus very loosely. In this type of case, I believe an operative procedure is much to be preferred. (3) I have not had an opportunity of trying this procedure on a case with the upper lid turned in from a spasm of the orbicularis muscle, because of the rarity of the condition, but think that it should be effective here as well, in view of the width of the tarsus.

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A METHOD OF UNCOVERING LATENT HYPERPHORIA

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After making the usual test with the Maddox rod for distance, the dot-and-line test of Graefe is used at the reading distance, and the amount of prism required to adjust for hyperphoria at the near range is left before the eye while the distance test is repeated, any overcorrection for distance thus disclosed being reduced one half degree at a time, but requiring the patient to continue to look through each successive prism until the next is in place. In this way many patients were found to show a much greater amount of hyperphoria than was indicated by the primary test for distance. Read before the Section on Ophthalmology of the College of Physicians of Philadelphia, January 16, 1930.

Ophthalmologists are well aware that heterophoria, especially hyperphoria, is at the root of the discomfort which many patients experience upon use of the eyes at close range for any length of time. Many such patients state that, although they have been tested for glasses many times and have worn glasses for years, they have never obtained complete or satisfactory relief. They may have been told that there is nothing wrong; nevertheless, they continue to have trouble upon prolonged use of the eyes at close work.

In an analysis of five hundred cases upon which this study is based, I find, in the order of frequency, the following symptoms manifested: (1) frontal headache; (2) panoramic headache, such as that experienced in viewing moving pictures or in watching passing scenes while on the train or trolley, the headache being accompanied oftentimes by a sense of nausea; (3) tiring of the eyes themselves; (4) sleepiness in reading; (5) lid abnormalities, such as hyperemia of the conjunctiva, increased lacrimation, and blepharitis; (6) blurring of the print in reading; (7) combined frontal and occipital headache; and (8) occipital headache alone.

These symptoms may be accompanied by reflex phenomena in more distant parts of the body, such as gastric and intestinal disorders, general nervousness and neurasthenia.

The methods of testing these patients are well known to the majority of the readers; for the benefit of those less familiar with these procedures, however, I shall review the general methods used and point out a new method which has given me the greatest satisfaction in uncovering latent hyperphoria.

In order to completely examine any patient with the object of relieving him by correcting lenses, three practical estimations should be made: (1) The estimation of the refraction under a cycloplegic in all patients under the presbyopic age except those who are highly myopic or those in whom there is a suspicion of glaucoma. Duane (Fuchs's Textbook of Ophthalmology, 8th edition, p. 211) has "found it advantageous to paralyze the accommodation in patients between forty and fifty. It has been my experience," he says, "to find patients of this age in whom the refraction could not have been determined accurately without a cycloplegic." (2) A careful search for heterophoria, especially hyperphoria, which may be manifest to the usual tests, or may be entirely latent and only made manifest by diligent search. It is with this particular phase of the subject that I wish presently to deal. (3) An estimation of the vergence power, with the particular purpose of determining whether there exists any convergence insufficiency, because, in a certain number of cases, this may be the main cause of their discomfort; this insufficiency should be corrected by exercising the internal recti.

The correction of the refraction is well understood, and there is no question as to the advisability of the patient's wearing the correction for hyperopia, myopia, or astigmatism. As to the second factor, I believe that the estimation of the muscle balance by some ophthalmologists is still either imperfectly understood; completely ignored; recognized as having a potent

relation to symptoms but performed superficially; or, having been found, especially in some of its complex aspects, is not properly corrected.

Tests for heterophoria

In the estimation of heterophoria, the monocular occlusion test, as advocated by F. W. Marlow (Transactions American Ophthalmological Society, 1920, v. 18, p. 275; American Journal of Ophthalmology, 1921, v. 4, p. 238), has much to commend it. Without doubt patients show a higher degree of deviation, either vertically or laterally, after a period of monocular occlusion than can be shown previously because fusion is broken up. This can be demonstrated very conclusively in everyday work following the short occlusion incident to testing the refraction. Wendell Reber, in a discussion of this subject (Ophthalmic Record, 1913, v. 22, p. 110), pointed out that 1.5 to 2.5 degrees of vertical deviation could be brought out by this means when previously none was manifest.

The chief objection to Marlow's method is the time involved, which in his opinion should be seven days, and in some instances fourteen days, during which time one eye should be completely occluded at all times, putting on the cover before opening the eyes in the morning and not removing it until after closing them at night. Also, as Marlow points out, in order for the test to be successful the physician must have the full cooperation of the patient, who must have the intelligence to understand the test and a willingness to give all possible assistance. In many patients the time factor is all-important, so much so that it is difficult to obtain their cooperation to this extent.

Duane and Berens (Ophthalmic Literature, 1921, March), in a comment following a review of Marlow's article, question whether such prolonged occlusion may not produce an artificial dissociation which may not truly represent the conditions normally present. O'Brien (Journal of the American Medical Association, 1925, v. 85, p. 1295) comments favorably upon Marlow's test, but obtains his results with two or three hours of occlusion in his office.

The parallax test, as described by Duane (Motor anomalies of the eye, 1897, p. 34; New York Medical Journal, 1889, August 3) is a delicate measure of the phorias and gives a true picture of the condition present. Jackson (Medical News, 1893, v. 13, p. 454) points out that when the eyes are alternately covered one of them is always free from any stimulus and hence from any possible directive influence except in the associated movements which it is desired to measure.

The Maddox-rod test is the simplest and most satisfactory for testing at distance. By many examiners this test is used satisfactorily at the near point, using a small light with a pinhole aperture superimposed, the degree of deviation being measured by the strength of prism necessary to cause the line of the Maddox rod to exactly cut the light.

My own preference is for the Maddox rod for testing at distance (six meters), and the Graefe dot-and-line test for the near point. However, the test employed is largely a matter of individual preference. F. W. Weymouth (Ophthalmic Record, 1916, v. 25, p. 271) points out, after experimental comparison of the Maddox rod test, the Graefe test, and a modification of the parallax test, that the results show, both by the degree of heterophoria and by the variability of the readings, when conducted with certain precautions, that all the methods give accurate and consistent measurements which differ so little as to make the choice of method a matter of indifference.

In doing muscle testing, as S. H. Robinson has aptly said (American Journal of Physiologic Optics, 1922, July), two kinds of knowledge are valuable: first, the fundamental principles governing each step; second, a specific working method for accomplishing it.

Richardson Cross (Transactions of the Ophthalmological Society of the United Kingdom, 1922, v. 13, p. 325) recalls that when the eyes are directed

straight forward they are in a state of minimum innervation. This is the state in which any anomalous tendency would be shown more truly. Nevertheless, nature always calls for single images, and in those cases in which there is functional weakness, with tendency to deviations of not more than three degrees in the vertical, nature may completely mask such error by increased innervation to the muscles which normally oppose such tendency to deviation.

To those fortunate persons of the phlegmatic type, abundantly endowed with sufficient reserve of nervous energy, such deviations may mean little and may produce no symptoms. This is constantly seen in many patients, who, although showing such deviations, suffer none of the distressing sequelæ so frequently experienced by others; it is in these that correction of the refractive error alone gives perfect comfort.

In that other type of individual, poorly endowed with nervous reserve or worn out by the efforts of the eyes to maintain binocular equilibrium, the greatest train of reflex phenomena may be developed. These phenomena may apparently be far removed from the eyes. Or there are those individuals, who, having suffered always from continued use of the eyes, having been the rounds of general practitioners, laboratory investigators, and oculists, and possibly having been compelled to give up a career calling for much close work because of the impossibility of prolonged close application, finally find their symptoms completely and almost immediately relieved by the correction of a latent hyperphoria.

When one considers that sursumduction, as normally measured, is recognized by most investigators as amounting to 4.00 or 6.00 degrees of prism power, and oftentimes not more than 2.00 or 3.00 degrees, it can be seen readily that constant deviations of even so little as 0.50 degree may, in persons with a delicately balanced or nearly exhausted nervous system, call forth a long train of reflex symptoms such as have been described.

The following **method of uncovering** latent hyperphoria has given me most excellent results. It is accomplished in three steps or procedures: First, a Maddox rod is used to measure the lateral and vertical balance in the usual manner at six meters; if vertical deviation is present, a prism of sufficient strength is employed to bring the line into the light. This constitutes the primary measurement for distance. By this test the patient reveals his manifest error. In my series of 500 cases (see table), 253 showed no imbalance to this primary test; 235 others revealed from 0.25 to 1.00 degree of hyperphoria; while only twelve of the whole number showed so much as from 1.25 to 2.00 degrees. This may be due to the fact that one or two degrees of vertical error are successfully overcome without symptoms in those patients who have an abundance of reserve energy, but in others only with the greatest effort and with a drain of nervous energy which causes most constant and annoying symptoms. In testing the eyes at distance, we are testing them in the state most nearly simulating repose, unless we except such stimuli as arise from hypermetropia and astigmatism, which may be counteracted by making the test at the time of the postcycloplegic examination with the correcting glasses on. This is a part of my routine.

Second, having completed the primary distance test, the patient is given a card containing the dot and line of Graefe, and he is told to hold it in the horizontal position at the reading distance, approximately 33 cm. from the eyes. In testing for hyperphoria a 20.00 degree prism is placed before one eye with its base towards the nose. Lateral diplopia is thus produced, and if no hyperphoria exists the two images will be on the same horizontal plane. Should one be higher, a prism of sufficient strength base up or base down, depending upon whether the right or left eye deviates, is placed before one eye to bring the images on the same horizontal plane. The resultant measurement frequently will be found to be greater by 1.00 to 4.00 degrees than that

TABLE OF 500 CASES REVEALING HYPERPHORIA

Primary or first distance test for hyperphoria								Near test	Second distance test
None		0.25 to 1°				1.25 to 2°			
		R.H.		L.H.		R.H.	L.H.		
2				2				0.75°	1°
7		3		1				1°	0.5°
19		4		7				1°	0.75°
5	33	6	13	3	13	1		1°	1°
2		1		1				1.5°	0.5°
14				3		1		1.5°	0.75°
36		10		22			1	1.5°	1°
4	56	4	15	3	29	1		1.5°	1.5°
6				2				2°	0.75°
40		9		23		1		2°	1°
2								2°	1.25°
		11		39				2°	1.5°
30	78	6	26		64		1	2°	2°
5		1		2			1	2.5°	1°
1								2.5°	1.25°
9				12			2	2.5°	1.5°
1				1				2.5°	1.75°
	16	1	2	2	17			2.5°	2°
1								3°	0.75°
13		1		4				3°	1°
				1				3°	1.25°
34		3		20				3°	1.5°
3				10			1	3°	2°
1						2		3°	2.5°
1	53		4		35			3°	3°
				1				3.5°	1°
5				2				3.5°	1.5°
1	6			2	5			3.5°	2°
7				5				4°	1.5°
1		1						4°	1°
2	10		1	5	10			4°	2°
1	1			1	1			4.5°	1°
Total	253		61		174	6	6		
		Total 235 having either right or left hyperphoria				Total 12			

shown by the first test at six meters.

Referring to the 253 cases already mentioned as showing no imbalance to the primary test at six meters, it was found that 167 showed a deviation of from 0.75 to 2.00 degrees inclusive at the near test; 69 showed 2.50 degrees to 3.00 degrees inclusive; and 17 showed over 3.00 degrees, the highest case being 4.50 degrees in the same test. Again, of the 235 cases showing a primary deviation of from 0.25 to 1 degree at the primary test at six meters, it was found that 160 showed a deviation of from 1.00 to 2.00 degrees inclusive at the near test; 58 showed 2 to 3 degrees inclusive; and 17 showed over 3.00 degrees, the highest being 4.50 degrees in one case. The remaining twelve cases, of the whole series, that showed a deviation of from 1.25 to 2.00 degrees inclusive at the first test at six meters, showed from 1.00 to 3.00 degrees at the near test.

The third step in this procedure is now undertaken. The prism found to give equilibrium at the near test is left in position before the patient's eyes, and he is told to look again at the light at six meters; then the Maddox rod is again placed before one eye. Naturally, the patient will now have an overcorrection for distance, and, if the primary distance test revealed left hyperphoria, there will now be right hyperphoria. The examiner should now decrease the strength of the prism by half degrees, as is my custom, until the balance is again restored for this distance. In doing this, care should be taken to superimpose the second prism before the first is removed, or at the instant this is done, so that there will be no interval for readjustment, or fusion, between changes. In my opinion this is a most important point, as otherwise a true estimation will not be obtained. By reducing the strength of prism giving balance at the near test by half degrees at a time, a strength of prism is found that gives balance for distance, but this strength is usually considerably greater than that shown at the primary distance test. The difference between the amount found in this second distance test and the first, or primary, test represents the latent error which was compensated for because of muscular contraction called forth by the natural desire for single, superimposed images.

By referring to my table, including those showing either right or left hyperphoria, there were 167 patients who showed no hyperphoria at the first distance test, but between 0.75 and 2.00 degrees for near, and from 0.75 to 1.50 degrees at the second distance test. This latter, then, represented their latent error, as it was not manifest at the first distance test. Again, 69 cases showed no hyperphoria at the first distance test, but between 2.50 and 3.00 degrees for near and accepted from 1.00 to 3.00 degrees at the second distance test. Again this error was entirely latent. Also, seventeen showed none at the first distance test, but over 3.00 degrees for near, and from 1.00 to 2.00 degrees at the second distance test. These again were entirely latent. This makes 253 cases out of 500 in which primarily no hyperphoria was shown at distance, but in which from 0.75 to 3.00 degrees were uncovered. The others in the series showed deviations to the first distance test, but showed more as uncovered by this method of testing. In this series of 500 cases I was surprised by the number of patients showing left hyperphoria as compared to right hyperphoria, namely, four to one.

A word should be said as to the ordering of lenses in these cases. The amount uncovered is taken as the basis for ordering prisms in conjunction with the other factors of the case, such as the amount of esophoria, exophoria, and convergence power, which latter must be sufficient to maintain convergence in prolonged close work. Without going deeply into all the factors which must be taken into consideration, I may say that my rule is: In the presence of exophoria, the patient may be given nearly or quite the full amount of hyperphoria uncovered by the second distance test, and wear it with much comfort and relief; in the presence of esophoria, it will be necessary to deduct from one-third to one-half of the amount uncovered at the second distance test for incorporation in his lenses.

E. E. Maddox (American Journal of Physiologic Optics, 1922, January), says, "If lateral deviations are complicated by hyperphoria, correct the vertical deviation first and the lateral will very likely correct itself." With this statement I heartily agree, but if there is deficiency in convergence power, prism exercises should be used.

M. D. Stevenson (Transactions of the Section of Ophthalmology, American Medical Association, 1909, p. 82) has insisted that the degree of hyperphoria may not be the same for distance as for near and in these cases the prisms will have to be of different strength for near and for distance. In my experience the amount for near is always greater than that for distance, but if the latent hyperphoria is sought for in the manner

herein described and taken as the basis for ordering, the patient will be comfortable for near as well as for distance.

The method here presented for uncovering latent vertical deviations I have not found described in the literature. It appeals to me because of its simplicity, rapidity of determination, and accuracy. By its use one is able to give the sufferers from these defects very marked relief, and I look upon it as one of the most valuable procedures at my command. It requires no unusual intelligence upon the part of the patients to comprehend what is expected of them, and the time necessary for its study or accomplishment is not longer than that devoted to the usual consultation. The results obtained are often a source of delight to the patient and of great satisfaction to the examiner.

308 South Sixteenth street.

A CASE OF HEMIACHROMATOPSIA

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The condition is rare. The patient whose case is here reported had a severe arteriosclerosis with kidney involvement. There was slight homonymous hemianopsia for green, red, and blue. With quotations from the literature, the probable location and character of the cerebral lesion is discussed. From the department of ophthalmology, Jefferson Medical College.

This contribution concerns itself with a case of hemiachromatopsia, which is reported by reason of its rarity.

The patient was a male, aged fifty-six years, who presented himself for the relief of headache and blurring vision on February 18, 1930. He had worn glasses for a number of years and his present correction was: O.D.+2.50 sphere+1.00 cy. ax. 90 with a 0.75 degree prism base down; O.S.+2.75 sphere+1.50 cy. ax. 90 with a 0.75 degree prism base up.

Examination of the muscles revealed 2.5 degrees of hyperphoria, 3 degrees of esophoria at 6 meters, and 6 degrees of exophoria for near. Pupils were 3.5 mm. in diameter, round, equal and reacted normally. Consensual reaction was present on each side. Conjunctivæ and tear sacs were normal. Tension was normal and the anterior chambers were of normal depth. Rotations were full and equal in all directions.

Ophthalmoscopic examination of each eye showed the media to be clear, the disc oval at 90 degrees and of good color, with sharp edges. Physiological cups were deep. The vessels were sclerosed and the crossing phenomena were marked. There was increased tortuosity of the vessels with broadening of the light streaks. The left macular area showed many small white spots, and a few larger ones were noted at the periphery of the fundus along the course of the vessels. A few small flame-shaped hemorrhages were also noted. The blood pressure was 190/140.

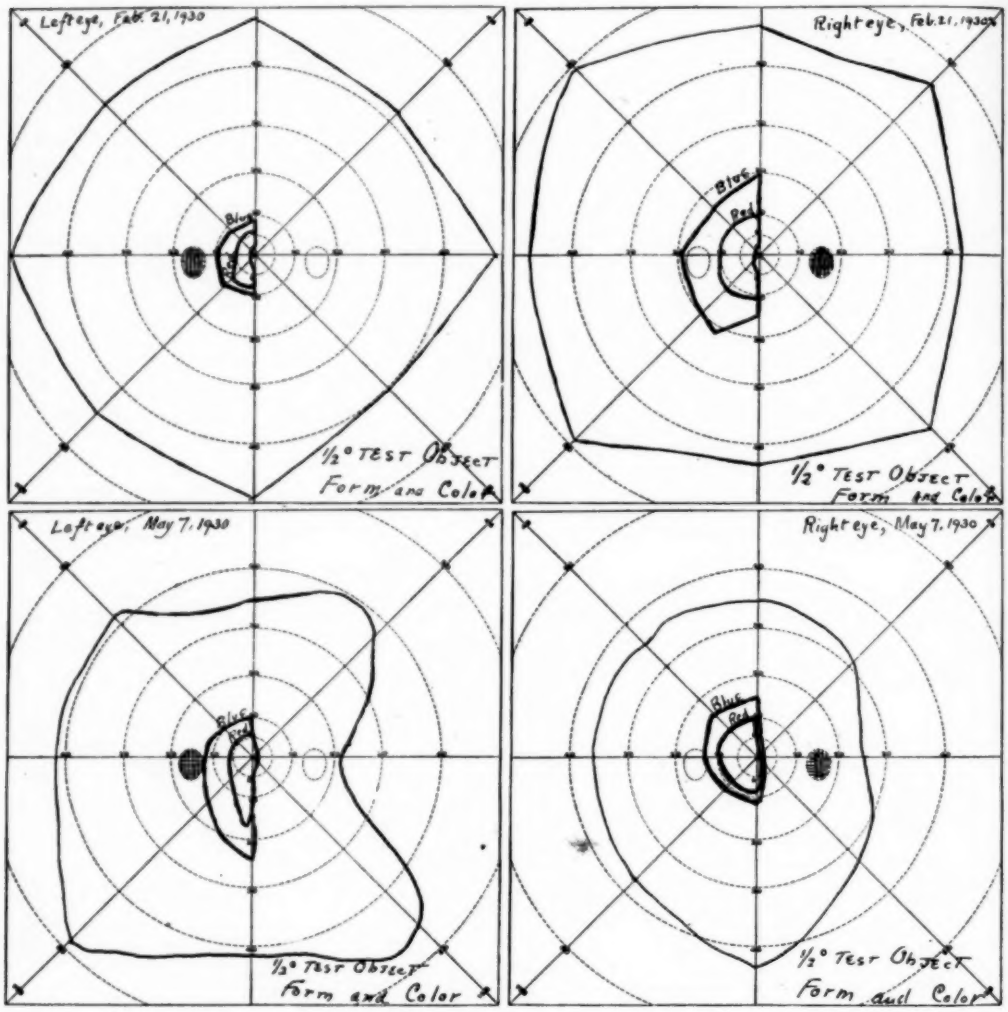
Fields taken on the campimeter with 2 mm. test objects showed a normal field for form, but the color fields for green, red and blue revealed a right homonymous hemiachromatopsia. The blind spots were normal. The hemianopic color fields for green, red and blue were slightly contracted, especially on the left side. The fundus changes, together with the field findings, were suggestive of a lesion, possibly a small hemorrhage or edema, in the optic radiations or cortex on the right side of the brain.

The patient was told to return in a few days for further study and observation, and he was referred to an internist for a complete medical examination and laboratory reports. He failed to return in a week.

On the ninth day, Dr. Shannon was called to the Delaware County Hospital to make an eye report on a very sick patient; he found it was this man. The patient was confused, incoherent, and had difficulty in walking. He did not recognize us, nor did he seem to know where he was. At the time of the visit he was being fed by a nurse and gave the picture of a severe mental case. On the second day in the hospital his temperature was 101, his respirations were slightly increased, and he complained of a severe pain in his head. His mental condition was even worse than on the preceding day and an attendant was necessary to keep him in bed.

The significant laboratory findings were as follows: The urine showed albumin, hyaline casts, red cells, and white cells; blood examination revealed a moderate leucocytosis, a slightly elevated sugar content, and twice the normal amount of urea nitrogen; the spinal fluid was under pressure of 10 mm. of mercury and showed many red cells, a few white cells, and some sugar.

The internists reported no definite abnormalities except to say that the



A case of hemichromatopsia (Shannon and Edgerton).

patient was somewhat mentally disoriented and appeared to be acutely ill.

The neurologist, Dr. Waygood, found no evidence of organic nervous disease. The patient showed a general cloudiness of intellect; his talk was rambling and disconnected. He seemed to be having a delirious reaction apparently resulting from his kidney infection. Any improvement would depend upon the outcome of this infection.

The patient continued in this incoherent state for about ten days and on the fourteenth day his general condition and mental state had greatly improved. He was able to leave the hospital in a few days (March 20th).

He reported to the office again on April 8th. His vision, with correction, was 6/9 in each eye. Fields taken again with the campimeter showed exactly the same type of color field as on the first visit. With the ophthalmoscope the picture of sclerotic vessels was noted in each eye, but the small hemorrhages seen at the first visit had been completely absorbed.

April 22nd, the fields were taken again with 2 mm. test objects. The blind spots were normal. Form fields showed some contraction, and the red, green and blue fields showed a right homonymous hemiachromatopsia sparing the fixation point. There was a temporal field for blue if a 5 mm. test object was used.

April 25th, fields taken with a Ferree-Rand perimeter showed the fields contracted, especially the right temporal and left nasal fields with a right homonymous hemianopsia for colors. 2 mm. test objects were used.

April 29th, form fields were tested with a 0.5 mm. test object which showed greater contraction than the previous field; the red field was taken with a 2 mm. test object. The red field still showed the same type of color hemianopsia of the right eye, but the left showed some increase in the red field.

May 7th, 1 mm. test objects were used for form and color. Form fields were contracted and colors showed the same type of hemiachromatopsia. The fixation point, however, was not spared this time, as some red field was apparent on the opposite side of fixation. Blind spots remained the same. Vision =6/6 in each eye.

The fields in the present case showed a right homonymous hemianopsia for green, red and blue. The first two fields, taken on the scotometer, showed fixation to be spared for colors, and it was also definitely demonstrated on the Ferree-Rand perimeter using a 2 mm. test object. The last two fields taken were tested with smaller test objects. On April 29th, the form field was taken with a 0.17 mm. test object which showed some contraction for form on the right side of the fields, corresponding to the color hemianopsia. The red fields taken at this time were made with a two millimeter test object and this examination revealed that fixation was involved.

In the last fields taken on June 16th, the color fields did not spare fixation and the form fields again revealed a similar contraction. The blind spots remained normal. With a diminution in the amount of illumination used, the form fields showed a definite contraction on the right side which corresponded to the findings when using a smaller test object for form.

This case demonstrated the fact that form fields show also some contraction for white, when using smaller test objects and lessened illumination, corresponding to the loss of color sense. It is generally accepted that loss of color fields is in advance of form fields. This case is also of interest because the literature is rather scanty on this subject.

There is no doubt some interference in the conductivity of some of the fibers in the visual tract, which, due to his intense arteriosclerosis and renal disturbance, might have caused a small hemorrhage or edema in the optic radiations or cortex on the right side, or there is the possibility of a small cyst in that area, or some other early organic lesion. And yet Traquair[1] states that no special perimetric features can be relied upon to distinguish hemianopsia due to a lesion of the optic radiations from one depending on an

affection of the cortex, or to indicate the level at which the radiations are involved.

Color defects are relative defects and are usually associated with some demonstrable loss of perception of white. At times the smallest test objects available for white are used, but the quality of a relative defect is best determined by testing with color.

Zentmayer's case[2] of bitemporal hemianopsia with hemiachromatopsia had been observed and studied over a period of twenty years. Occipital and frontal headaches were a constant symptom. Later on a papillitis developed on each side. Vision at first was diminished and later improved. Diplopia and failing memory became a late symptom. Death was caused by pneumonia. This case showed some improvement in vision in the blind area and he regained part of the blind field, which was explained by the fact that constant pressure by some lesion on the base of the skull had worn the bone away, thus relieving the pressure on the tracts and chiasm. There was no postmortem examination in this case.

In true hemiachromatopsia, in which the white field is unaffected, the dividing line passes through the fixation point. In explanation of this, Wilbrand claims there is a center for colors distinct from that of form or from that of white, and he is supported by Samelsohn and Landolt. Bull and Dahms do not accept this view.

Holden's views[3] are thus stated: "A slight interference in conduction of any of the fibers of the visual tract leads to an inability to recognize green or even red or to distinguish slight differences in luminous intensity. A more marked disturbance in conduction leads to the inability to recognize blue or to distinguish quite marked difference in luminous intensity. A greater interference with conduction prevents the distinguishing of white from black, and with complete interference with conduction even perception of light is lost. . . . . Thus the recognition of color varies with the light sense and the assumption of the involvement of a particular cortical color sense in cases of hemiachromatopsia is not only unnecessary but is palpably erroneous."

Swanzy[4] states that color hemianopsia is the result of a lesion of less intensity than that which causes absolute hemianopsia and that the color sense is more easily affected by disease than the form or light sense irrespective of the position of the lesion in the visual path.

De Schweinitz says[5] that homonymous hemiachromatopsia is probably caused by a cortical lesion of less intensity than one which produces absolute hemianopsia. He reported a case which showed absolute hemianopsia, but later only obliteration of colors, although light sense and form sense returned. According to de Schweinitz a lesion confined to the cuneus or gray matter surrounding it on the mesial surface of the occipital lobe produces homonymous hemianopsia without motor or sensory symptoms; a hemianopsia in which there is preservation of the light sense but loss of either color sense or form sense has been attributed to a lesion in the cortex of the visual center; and homonymous lateral hemianopsia may be caused by a lesion in the occipital lobe, optic radiations, internal capsule, the primary optic centers or the optic tract. Holmes doubts if it has been conclusively proved that color perception may be lost in any part of the field when light or white is undisturbed, and claims that an isolated case or dissociation of color vision is not produced by cerebral lesions. Harris states that a lesion near the internal capsule may cause hemiachromatopsia and that the lesion need not be cortical to produce this condition.

According to Traquair[6] a primary lesion of the tract is rarely encountered but the tract not infrequently becomes involved by disease of nearby structures. The most common lesions are due to tumors, syphilis, multiple sclerosis, and vascular changes and injuries, the last acting by interference with nutrition of the nerves or by destroying them, so that function is impaired or permanent functional loss de-

velops. If the onset is sudden, the cause is usually vascular and may be due to thrombosis, hemorrhage or an embolus.

If the defect is relative and sudden, being due no doubt to hemorrhage or angiospasm, nutrition is impaired but not shut off. If the onset is gradual, a tumor or abscess is probably the causative factor and field changes may be a late symptom, when the visual pathway is not primarily involved, because the brain accommodates itself to some extent if a lesion is slow in growing.

Tract disease, with a complete sudden division of one tract, will produce an absolute total hemianopsia, without sparing fixation, and it is indistinguishable from a complete division of the suprachiasmal visual path at any other level, as far as perimetry is concerned, but a tract lesion of this kind is rare and restitution of the fixation area does not occur.

Hemianopsia as an isolated symptom is rarely due to a lesion of the optic radiations unless wounds are the causative factor. Findings by Lentz show that sparing of the fixation point is rarely found with an anterior lesion. It does, however, occur in affections of the tracts and radiations and is the rule in occipital hemianopsias (Traquair, page 199).

Traquair further claims that "homonymous hemianopsia may be relative or absolute or the intensity may vary in different parts of the defect or at different times. The hemianopsia may begin suddenly or gradually and may remain permanent or may recover partially or completely..... Different combinations of several variable factors, such as the extent, intensity or position of the defect or defects in the two fields, lead to the production of many field pictures, all essentially of homonymous hemianopsia type and all dependent on the anatomical position and severity of the causal lesion or lesions".

According to Peter[7] we have no assurance that there are separate pathways for carrying of color impulses or special cortical centers for color perception, and without these special centers there should be no frank color defects in which form changes cannot be elicited by quantitative perimetry.

1930 Chestnut street.

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HEREDITARY HIGH HYPEROPIA

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The five patients whose cases are here recorded were a mother and four out of her seven children. In all five there was high hyperopia, complicated by convergent strabismus. Three of the patients had nystagmus, and four of them presented the fundus picture of optic pseudoneuritis. There was no consanguinity between the parents. From the New York Eye and Ear Infirmary.

It is well for ophthalmologists to be frequently reminded, because of their highly specialized viewpoint, that many problems of practical interest are essentially biological, chemical, or physiological. The part played by the laws of heredity, for example, is extremely important in determining a large number of normal and abnormal ocular characteristics. Some of these characteristics are clearly Mendelian dominants, recessives, or are sex-linked, having been established as such through exhaustive study of many generations of animal and clinical material. The intricacies of the heredity of other characteristics are as yet not fully understood.

A list of a few better known hereditary conditions would include iris color, iris defects, color blindness, hemeralopia and nyctalopia, retinitis pigmentosa, optic atrophy (Leber's disease), the maculocerebral degenerations, lenticular dislocations, and ptosis.

Myopia can be frequently shown to be familial, and this fact is well recorded in the literature. Definite transmission of the hyperopic state, while there is evidence to prove its existence, has been more rarely demonstrable.[1] For this reason we believe the following account of five patients, who presented themselves in Dr. McDannald's clinic at the New York Eye and Ear Infirmary, will be of interest. The patients were a mother and four of seven children. In all five the high hyperopia was complicated by convergent strabismus, in three of the five cases by nystagmus, and in four of the five by optic pseudoneuritis. The families of the woman and her husband (Italian), for four generations, gave no history of other abnormal cases. There was no consanguinity.

Case reports

Case 1. M.P., the mother, aged thirty-two years. Vision R.E. (corrected) equals 15/200, L.E. equals 15/30. There is a convergent strabismus of the right eye which cannot be accurately measured by prisms, for the patient supresses the vision of this eye. No nystagmus is present. Fundus examination shows blurring of the nerve heads, particularly the nasal margins. Hyperopia by retinoscopy: R.E. equals plus 7.00 D. sphere; L.E. equals plus 6.50 D. sphere combined with plus 0.50 D. cyl. axis vertical.

Case 2. J.P., male, aged fifteen years. Vision of each eye (corrected) equals 15/200. There is a right convergent strabismus and horizontal nystagmus. The esotropia measures approximately forty-five prism diopters for distance and near, which is reduced to fifteen prism diopters by correction. Fundus examination shows marked blurring of the margins of both nerve heads which are also hyperemic. Retinoscopy: R.E. equals plus 9.00 D. sphere; L.E. equals plus 10.00 D. sphere.

Case 3. P.P., Male, aged thirteen years. Vision of each eye (corrected) equals 15/100. There is a left convergent strabismus and a fine horizontal nystagmus. There is a deviation of the left eye upward as well as inward. The esotropia measures over sixty prism diopters for distance and near, and is not improved by correction. Fundus examination shows marked blurring of the margins of both nerve heads. Retinoscopy: R.E. equals plus 8.00 D. sphere combined with plus 3.00 cyl. axis 45; L.E. equals plus 9.00 D. sphere combined with plus 1.00 D. cyl. axis 135.

Case 4. C. P., Male, aged seven years. Vision of each eye (corrected)

Hereditary hyperopia (Lambert and McDannald): Cases 1, 2, and 3, the mother and her two oldest sons.

equals 15/200. There is a left convergent strabismus with a tendency to alternate, and a fine horizontal nystagmus. The strabismus measures sixty prism diopters for distance and near, which is reduced to forty prism diopters by correction. Fundus examination shows marked blurring of the margins of both nerve heads. Retinoscopy shows plus 9.00 D. sphere in each eye.

Case 5. J. P., Male, aged five years. Vision not accurately determined because of poor cooperation. There is a right convergent strabismus of approximately twenty prism diopters for distance and near, which cannot be improved by correction. There is no nystagmus, and fundus examination shows the nerve heads to be normal in appearance. Retinoscopy: R. E. equals plus 5.00 D. sphere combined with plus 1.00 D. cyl. axis horizontal; L. E. equals plus 5.00 D. sphere.

While reports of hereditary strabismus have been published[2, 3], they are largely without a complete study of the cases. It is evident that a record of the heredity of strabismus, per se, without an analysis of the refraction or other ocular pathology which may be of fundamental significance, is apt to be misleading. In our cases the entire picture appears to be directly traceable to the basic hyperopic state. Whether or not the eyes were small could not be determined by the corneal measurements, which were normal. The appearance of the eyes did not warrant the use of the term microphthalmos.

As there was no knowledge of a similar condition in additional members of the family, we believe it to be a recessive Mendelian characteristic. This viewpoint is confirmed by Francheschetti[4], who considers low myopia and hyperopia as probably dominant in nature (as far as an accurate analysis of the factors concerned is possible), whereas high myopia and hyperopia appear to be recessive. Five reports of transmitted hyperopia in the literature are mentioned by him.

The practical interest of these cases is that they may throw some light on the question of hereditary versus environmental influence upon refractive errors, and may invite further criticism and study in this direction. According to a recent statistical analysis by Heinonen[5], hygienic measures applied to schools during the last several decades have failed actually to reduce the high incidence of myopia in children. This failure points, as the author states, to the hereditary nature of this condition. Barrington and Pearson[6], in another exhaustive study, found no evidence that poor environmental condi-

tions in childhood had any deleterious effect upon eyesight. They say, "There is ample evidence that refraction and keenness of vision are inherited characters, and that the degree of correlation between the eyesight of relatives is of a wholly different order to the correlation of eyesight with home environment".

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THE INCIDENCE OF GLAUCOMA AMONG THE JEWS

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The author disputes the common impression that glaucoma is more common among the Jews than among other peoples. He describes his personal experience as a patient suffering from glaucoma attributed to anterior uveitis, and connects the latter with the wearing of low minus cylinders in the early stages of presbyopia, in association with disturbances of general metabolism. Complete recovery ensued without surgery and without continued use of miotics.

It is a common belief among ophthalmologists that the Jewish race is more susceptible to glaucoma than any other race. Even Laqueur himself, who was of Jewish extraction, thought that he was predisposed to glaucoma by hereditary influence. The usual explanation given has a rather rational basis. Glaucoma is supposed to be markedly influenced by nervous and emotional states. It is thought that the Jew, being emotional and nervous from the abnormal environment under which he was and still is forced to live, contributes a higher percentage of glaucoma cases.

As an ophthalmologist of twenty-five years experience with a practically Jewish clientele in private practice, and a fifty percent gentile following in my hospital work, I think that my observation may be of some value in clearing up this generally accepted but erroneous idea. Textbooks usually copy from previous works without any special investigation, and so some erroneous ideas perpetuate themselves. Who will dare to dispute conclusions of professors in their otherwise valuable textbooks?

The idea that the Jewish race is singularly predisposed to glaucoma originated in the Vienna school of ophthalmology, where a large number of Jewish cases were observed. It is true that in the Allgemeine Krankenhaus a large percentage of Jewish cases have been seen. The explanation however, does not rest in the inherent racial predisposition, but rather in the social and economic environment of the patients that make up the constituency of that institution.

Before the war, the Allgemeine Krankenhaus was a clearing house for all Austria-Hungary, including several adjacent countries, all of whom flocked to Vienna in case of distress. The bulk of the non-Jewish population in smaller towns and the whole peasantry of the great empire never or rarely came to Vienna for help for their eyes; they re-

mained at home. Some were treated by the local physician, others remained at home without any treatment, while some used home remedies and went blind; these classes, therefore, escaped the efficient care they would have received in a great institution. The Jew from the same districts and towns, being financially better situated and being mentally better prepared to appreciate the impending danger, undertook the journey to the medical Mecca of Austria. Even the poor Jew went to Vienna in search of relief, the money being obtained by collections from friends and relatives, and members of the Jewish community. It can readily be seen that a higher percentage of glaucoma cases among Jews was registered in Vienna.

The better class of Jewish patients who found their way to the private consultation rooms, were not satisfied with the opinion of one expert, but consulted several specialists, so that it can readily be seen that every case of glaucoma among the Jews was registered in several private offices and in several hospitals. Thus the Jewish glaucoma cases appeared to be in excess when compared to the number of cases in the other population.

In our own cities in this country we are virtually confronted with a similar situation. Every Jewish glaucoma case is registered in several hospitals and several private consultation rooms, while his gentile neighbor is registered only once. There are, of course, some exceptions to this statement as far as the gentile patients are concerned, but with the Jewish patient the above stated rule is, I think, absolutely correct. My own experience convinces me of the fact that every Jewish glaucoma patient that consulted me either in my office or at the hospital has been registered in several other offices and hospitals. Even the very poor patient has to consult a professor before submitting to operative procedures.

I am convinced that the incidence of glaucoma among Jews is about the same as among other peoples and that heredity is a negligible factor in the causation of this disease.

The primary object of this paper, however, is to relate my own personal experience with this complicated disease, and to describe two clearly defined symptoms that I observed, but have never seen reported in the literature. Finally, I wish to substantiate the contention of Jackson "that the belief that glaucoma inevitably means operation is not well founded." This paper also calls attention to Risley's contention "that the wearing of low myopic and astigmatic lenses in the early period of presbyopia is a potent factor in the causation of glaucoma". Like Laqueur, I never experienced any pain nor did I ever have any decided conjunctival or ciliary injection. In my early student days I wore a plus 0.25 cyl. axis 90. My visual acuity was 6/6 in each eye. I never suffered from eye strain, and was always in good physical health. I am of Jewish extraction, of good stock, without any hereditary taint. I live a normal Jewish life and conform to the dietary laws.

My trouble dates back to 1917, when according to my notes vision in my right eye began to be blurred, seeing everything through a bluish smoke.

On November twelfth my vision was blurred, but I could still see small print; distant vision 6/6.

On November thirteenth my vision was less clear, bluish in nature, and I had a distinct halo showing the colors of the rainbow. With a minus 0.75 cylinder my vision was 6/6.

These symptoms lasted for two weeks and then entirely disappeared.

I consulted a noted ophthalmologist at this time, who found nothing abnormal and prescribed low minus spherocylinders for steady wear. I was at this time forty-two years old. I had another prodromal attack three months later which lasted for four days.

My main trouble began July, 1918, when the same prodromal symptoms came back with increased severity. My vision began to fail and was very cloudy; I could read small print only with difficulty. The rainbow appearance was very annoying, but I had no

pain. There was no redness, but the eye felt very dull and heavy. Vision was reduced to 6/12, and reading became very difficult. All this time I noticed that my vision was considerably improved with a minus lens.

At this time two distinct symptoms appeared, which I have never seen mentioned in any textbook. (1) A distinct starlike pulsation appeared in the air in front of the affected eye. This no doubt represented the pulsation in the central retinal artery, transmitted through the ocular media; it was synchronous with the radial pulse. I actually counted my pulse by this stellar pulsation in the air. The second symptom that I noticed was the feeling in walking as if I had a hollow orbit on the right side,—the feeling of the absence of the eyeball. This observation was either the result of the use of eserin or it was part of the clinical picture. I was of the opinion at the time that it belonged to the general symptomatology.

I again consulted an eminent ophthalmologist, who corroborated my suspicion and diagnosed my case as a subacute or congestive glaucoma; he advised surgical interference, leaving the choice of the kind of operation to me. I chose an iridectomy, and was ready for it. However, he suggested that I should also consult another man. I saw the late Dr. Risley, who, after a prolonged examination, said that he would not advise operative measures for the present. In his opinion, I had an anterior uveitis, due probably to the wearing of low myopic cylinders overworking the ciliary muscles, and to an acid condition of the system. Incidentally, he advised me never to give low myopic and astigmatic lenses in the early stages of presbyopia. His treatment was as follows: an alkaline eye wash (private formula) and eserin salicylate 1/10 gr. to a three-ounce mixture. Internally, he gave me calcium chloride 5 gr. t.i.d. I had one molar tooth extracted, because the x-ray revealed some root infection. I reduced my diet, stopped smoking for several weeks, and had electric cabinet baths twice a week. My eyes began to improve. Dr. Samuel Risley, having condemned my myopic lenses, prescribed a plus 0.50 cylinder in each eye, and added plus 0.75 for near.

My eye improved and was perfectly well in about three weeks. The plus cylinders dulled my vision for about three months, but I persisted and am still wearing them with a little change in the axis from 90 to 60 in the affected eye. My vision is 6/4.

My visual field today is normal. During my illness the field was not taken, but the tonometer registered a high tension. It is impossible to say with any degree of certainty what contributed most to my absolute recovery without surgery. I may say that I had very little faith in the five grains of calcium, but I took them faithfully as advised. It is impossible to say with any degree of certainty that the wearing of myopic lenses in my case constituted the main causal element. I feel, however, that Risley's injunction against them in early presbyopes should receive careful attention. I do not wish to minimize the value of surgery in glaucoma nor to indicate that surgical procedures should be delayed. I have seen the bad effects of delay and the beneficial effects of early surgical intervention, but I do wish to call attention to the fact that not all cases of glaucoma in their various manifestations require surgical aid.

I also believe that an overaction of the ciliary muscles is a great factor in the causation of glaucoma, and that an intelligent use of proper glasses after the age of thirty will reduce the glaucoma incidence in the future.

I cannot close this communication without saying that I feel indebted to the late Dr. S. Risley, who in addition to being a good conservative ophthalmologist was a noble and sympathetic physician of the old school, whose memory I shall long cherish and whose advice I intend to follow.

2027 Spruce street.

SOCIETY PROCEEDINGS

Edited by Dr. Lawrence T. Post

COLLEGE OF PHYSICIANS OF PHILADELPHIA

Section of Ophthalmology

March 20, 1930

Dr. H. Maxwell Langdon, chairman

Sarcoma of choroid

Dr. George Schwarzkopf, Atlantic City, (by invitation) presented a case for differential diagnosis between tumor and choroidal detachment.

The patient, a man fifty-two years of age, had been seen in the office on the previous day. There were vague complaints about visual disturbances in the right eye. The history revealed no trauma, important hereditary factors or general disease.

The right eye appeared normal and there was no sign of inflammation. The iris and lens showed no changes. In the lower peripheral part of the eyeground there appeared a dark brown bulging mass with definite limits upward and inward, while the temporal limits were indistinct. The prominence of this mass could be seen ophthalmoscopically with plus 13 to 15 spheres. Small white reflecting areas with two medium sized blood vessels could be easily distinguished. There were no visible folds or tears; the eyeground was otherwise normal except for distinct arteriosclerotic vessels. The tension was normal and transillumination did not show any definite shadow. The vision was 10/15 with a slight restriction in the field corresponding to the described area.

Discussion. Dr. Zentmayer said, regarding the procedure of puncturing the mass for diagnostic purposes, that it brought to mind an experience he had had at the Wills Hospital some years ago, in regard to a young man with a doubtful serous detachment of the retina. Puncture was practiced and the lesion proved to be a sarcoma. Metastasis occurred into the orbit soon after enucleation of the eye. He felt that possibly, in puncturing the tumor, some of its cells found their way into the orbit and thus caused the metastasis. Therefore he considered this procedure not without some risk.

Dr. Langdon said one condition present, although he did not think it a factor in the special picture, was the advanced change in the retinal arteries. Whether that could have any influence on the condition he did not know, but thought that intraocular hemorrhage should be considered.

Tendon transplantation for paralysis of the superior rectus

Dr. Luther C. Peter reported a case of paralysis of the left superior rectus muscle, improved by tendon transplantation, because he considered it somewhat unusual and because of several other features of interest. (See American Journal of Ophthalmology, 1930, October, page 869.)

Discussion. Dr. Chance spoke of a case of congenital paralysis of the superior rectus in a young girl who was exhibited at a section meeting about eight years ago. He did a transplantation such as Dr. Peter recommended, but he took much more from the lateral rectus muscle than had been advised in the descriptions of technique to be employed. The patient, when seen two years ago, was free from any deformity or diplopia. She had originally a compensatory ptosis which was relieved by the operation on the ocular muscles. She had never been able to see above the horizontal plane of vision with the left eye until the operation made it possible for her to raise the eyelid. The procedure proved to be most satisfactory.

Dr. Shannon congratulated Dr. Peter on the splendid result achieved in his case. He then reported a case of complete paralysis of the right external rectus in a patient 49 years of age. The

paralysis followed, within a few days, a fracture of the skull eight years previously. The eyeball was deviated inwards 50 degrees and there was no power of outward rotation.

The superior, external and inferior recti were exposed, and a tuck was made in the external rectus. The superior and inferior recti were split and the free ends of the temporal slips were transplanted to the tendinous insertion of the externus. The internus was tenotomized. A week later the eyeball could be rotated outwards to slightly beyond the midline. Binocular vision was obtained in certain positions and the eyes appeared to be approximately parallel to inspection.

DR. PETER, in closing, said that Dr. Shannon was very modest in his report. The result in his case was very good, for previous to the operation the patient had been unable to rotate the eye outward at all, even to the midline. The diplopia was now relieved. Dr. Peter believed that, had a complete tenotomy of the internal rectus been done, the patient might have considerably more external rotation. He also believed that an advancement of the external rectus, instead of a tucking, would have been even more beneficial.

Foreign body in the lens

DR. GEORGE CROSS exhibited such a case.

Discussion. DR. ZENTMAYER said that in the fall of 1927 Dr. Fordyce brought to the Wills Hospital a man whose eye had been struck by a piece of steel a few hours previously. There was a perforating wound of the cornea, a wound in the capsule of the lens, and a foreign body situated within the lens almost at the posterior capsule. There was an opaque track in the lens. The foreign body was withdrawn by a magnet and for several days afterward there was an opacity in the lens; later the lens had to be removed on account of secondary glaucoma.

DR. HEED said he had seen foreign bodies retained in the lens for some time without any general opacity, and he felt that this was one condition of the eye that might be treated conservatively as long as there was no loss of vision. He exhibited a small foreign body which had produced a reaction thirty hours after being imbedded in the lens. Vision was reduced to 20/100. A definite star-shaped opacity and the foreign body were clearly seen up and in posterior to the subcapsular area. A fair view of the fundus was obtainable, but with the rapid change in the lens and the loss of vision it was felt that the sooner the steel was removed the better, and an operation was performed thirty-six hours after the injury.

Variations of intraneural course of central retinal vein

DR. W. E. FRY (by invitation) presented his observations made from the examination of serial sections of thirty-six optic nerves obtained from twenty cases. The sections were cut twenty microns thick; in some instances every fifth and in other instances every tenth section was prepared and examined. Cross sections were made beginning about 2 mm. behind the globe and continuing nearly to the intracranial portions of the nerve.

The artery and vein pass axially backward through the nerve from the plane of the lamina cribrosa, usually, but not always, close together. At a variable distance from the lamina the vessels turn and proceed toward the surface of the nerve. Based upon the course at this point, two types may be distinguished. We may speak of type one in which both the artery and vein proceed to the same point in the arc of the periphery, or surface of the nerve, and of type two where they proceed to different points in the arc. In the second type the artery and vein diverge from each other, usually at an angle of ninety degrees although it may be slightly less or more than this in some cases. The artery and the vein proceeded to the periphery according to the first type in fifteen nerves or forty-two per cent of the instances, and to the second type in twenty-one nerves

or fifty-eight per cent of the instances.

In the first type, when the vessels reach the point of turning they make a right angle bend with relation to the axis of the nerve. Both vessels usually cross the intervaginal space and pierce the dura immediately upon reaching the surface of the nerve.

In the second type the vein approaches the surface of the nerve anteriorly to the artery in eighty-one per cent of the instances. The artery crosses the intervaginal space immediately upon appearing on the surface of the nerve, and in all instances crosses the space before the vein, even though the latter appears in a subpial position while the artery is still within the center of the nerve.

In four of the cases of the second type the vein, after coursing posteriorly in the pia, turned at a right angle about the periphery of the nerve, passed through an arc of a quarter of a circle and made its exit from the dura at a point corresponding to the line of exit of the artery.

Discussion. DR. T. B. HOLLOWAY stated that from the standpoint of orbital anatomy he thought this contribution was of importance. It also had distinct bearing on the clinical side. As Dr. Fry intimated, it opened up the possibility that more of our cases of thrombosis of the central vein might have their focus more posteriorly, as had been suggested by Yamaguchi.

Aside from the clinical bearing on brain tumor cases, the findings immediately suggested the cause of the retinal hemorrhages in cases of hemorrhage into the sheath. Uhthoff and others have contended that it was impossible for blood to enter the eye from the sheath, but Paton believed blood might follow along the lymphatics at the lamina cribrosa. While this latter statement might be true, these findings seem to impress one with the probability of a retinal vessel origin in a definite number of cases.

A. G. FEWELL,
Secretary

COLLEGE OF PHYSICIANS OF PHILADELPHIA

Section of Ophthalmology

April 17, 1930

DR. H. MAXWELL LANGDON, chairman

Acute vitreous haze after external use of adrenalin and scopolamin

DR. H. MAXWELL LANGDON presented the case of Mrs. E. T. L., aged seventy years, who was first seen on July 10, 1920, with a low grade iridocyclitis of the left eye. The right eye was quiet. Under local treatment the attack soon subsided. The etiology was thought to be ethmoidal infection, which was treated by suction.

On September twentieth, there was a similar attack in the right eye. There were recurrent attacks during the remainder of 1920 and through July, 1921. At this latter time the left ethmoids were operated on. The patient was then free from attack until July, 1924. After that date the left sphenoid was opened with good results.

Attacks occurred in the right eye in 1927 and again in 1929. In March, 1930, a severe attack occurred in the right eye. The use of heat and scopolamin for forty-eight hours having had no influence on the pupillary condition, a pledget of cotton moistened with a few drops of a one to one-thousand adrenalin solution and two drops of 0.5 percent solution of scopolamin was placed beneath the upper lid.

Before this there had been some haze in the anterior part of the vitreous. The vision, however, was 5/5 plus, when corrected. In fifteen minutes the pupil was widely dilated, the upper part of the cornea was hazy, the vitreous opacities had greatly increased and vision was reduced to 5/45. The cornea was clear in half an hour, and in twenty-four hours the vitreous was nearly as clear as it was before the dilatation. The vision was 5/6. The right ethmoid cells were cleared and then the vision was 5/5.

Discussion. DR. ZENTMAYER said that he had frequently used the method

spoken of by Dr. Langdon; he had used adrenalin repeatedly in dilating the pupils for ophthalmic purposes and also for the treatment of glaucoma, but had never seen the phenomenon Dr. Langdon just described. He also said that recently a paper had been read before the section calling attention to cases of acute glaucoma which followed the use of ephedrin. He had never seen acute glaucoma following even an extended use of this drug.

Dr. de Schweinitz said that although he had not observed the phenomenon which Dr. Langdon described, it was not inappropriate to refer to a corneal condition occasionally noted after adrenalin and a mydriatic, as atropin or scopolamin, had been employed to break synechial attachments, the adrenalin being applied by means of a small roll of cotton placed beneath the upper lid according to Gradle's method; this condition consisted of a delicate but definite, slightly smoky corneal haze.

The first time he had noticed this haze was in a patient with relapsing iridocyclitis. He thought it indicated that a rise of tension was taking place because the haze was like that observed in the prodromal stages of acute glaucoma. But when tested there was no rise in tension; the slit-lamp showed a delicate edema of the corneal epithelium. The haze rapidly disappeared.

These phenomena had been noted by Dr. Baer and himself on several occasions in his office, and Dr. Baer had made similar observations in Wills Hospital. The haze might be explained by a temporary alteration of the intraocular tension, or by a direct effect of the drug on the corneal epithelium.

Sclerocorneal trephining in chronic simple glaucoma

Dr. William Zentmayer reported six cases of chronic simple glaucoma, in which sclerocorneal trephining had been done, as illustrating:

a. The frequently satisfactory results of this operation.
b. Quiet iritis, a complication which did not always defeat the purpose of the operation but which frequently interfered with a satisfactory visual result.
c. Transient marked changes in refraction, an annoying consequence of this operation.
d. The loss of the eye from late infection, the dreaded sequel of the operation.

(This paper will be published in the American Journal of Ophthalmology.)

Discussion. Dr. de Schweinitz said that it was his experience that quiet iritis after corneoscleral trephining was less apt to occur if the operative technique included a complete iridectomy; but it did occur in a certain number of cases, in a greater or less degree, even if a mydriatic had been instilled at the very beginning of the postoperative treatment. Another complication was the development of lenticular opacities, even after technically correct operative procedures; but should a complete cataract supervene, it was usually possible to extract it with success. He quoted cases of this kind in his own experience and in that of his associate, Dr. Baer.

Dr. Cowan said that the changes in refraction, to which Dr. Zentmayer referred, could hardly be due to a change in the anteroposterior position of the crystalline lens.

Based on the values for Gullstrand's schematic eye, the crystalline lens when displaced 1 mm. forward would increase the dioptric power of the eye 0.65 D; 2 mm. displacement would make an increase of 1.30 D. If the cornea were only 0.5 mm. in thickness, and the lens were displaced 3 mm. forward, it would leave the anterior chamber only 0.1 mm. in depth; then the increase in refraction would be only 1.88 D., which is correctable by a concave lens of less than 2 D.

Dr. Holloway said that, regarding Dr. de Schweinitz's reference to quiet iritis in these cases, it had been his own experience in a majority of cases; and while he had not been as much impressed with its frequency following complete iridectomy, he had found that if one examined the lower portion of the iris he would find it present.

Dr. Holloway hoped Dr. Zentmayer would cite some cases in regard to the filling in or sudden plugging of the trephine opening, such as not infrequently occurred, which was sometimes due to proliferation of uveal tissue or possibly to blocking with a ciliary process.

Only recently he had had an unfortunate experience in a patient who had been under observation for many years, and who came to him at the age of twenty-nine years for glaucoma. Bilateral iridectomy was done with good results. She was carried along for eight or nine years, after which a cyclodialysis was done in each eye and the tension was reduced to below normal. It subsequently rose rather slowly over a period of three or four years; recently it rose to 60 mm. Then trephining was done over the outer pillar; the tension remained down for two weeks and she was about to be discharged, when overnight the tension rose and remained up for five or six days and she was again trephined over the outer pillar of the coloboma. It is too early to say what the outcome will be.

Dr. Holloway said he had never had a secondary infection or a complication after trephining; he felt that the tendency to it was very much overrated and that it was not particularly apt to happen; he felt that if a check-up of these cases were made it would be found to be a rare occurrence.

Dr. Langdon said, concerning extraction of a cataract which comes on after trephining or which becomes further developed after trephining, that he had two experiences in removing them. One was successful, with very satisfactory vision; in the other, a satisfactory section was made but the attempt to extract the lens was blocked by the size of the lens. Pressure on the cornea produced a change in its nutrition with supervening degenerative keratitis. This lens was the largest that Dr. Langdon had ever seen. It seemed probable that the size of the lens had something to do with the production of the increased tension, and possibly in such cases a lens larger than usual might be expected.

Treatment of argyrosis

Dr. I. S. Tassman (by invitation) showed, from the clinic of Dr. J. M. Griscom at the Wills Hospital, a patient who was treated for argyrosis of the conjunctiva according to the description of a method reported by Dr. M. F. Weymann at a meeting of the section on Ophthalmology of the A.M.A. in 1929.

Mrs. L. S., an Italian woman, had a rather severe argyrosis of the bulbar, palpebral and tarsal conjunctivæ of both eyes, but more marked of the right. The argyrosis was due to repeated treatment of the eyelids with nitrate of silver over a period of months a number of years ago. She had to date received two injections each of 0.6 c.c. of a mixture of two parts of potassium ferricyanide 2 percent and one part of sodium thiosulphate 12 per cent, freshly prepared, as described by Weymann. There resulted in the right eye which was treated a noticeable clearing of the discoloration of the conjunctiva. A comparison could be made with the left eye which was formerly the better and now the worse of the two.

There was little reaction and very little pain following the injections, and the procedure was carried out practically without incapacitating the patient. More injections of the mixture described were to be given.

Moving pictures of ophthalmic operations

Dr. Frank C. Parker (by invitation) showed some very interesting moving pictures of ophthalmic operations.

Discussion. Dr. Holloway said that, as he had had experience with moving picture camera work in relation to medical subjects and knew how difficult pictures of this nature were to obtain, he knew just what Dr. Parker's accomplishment meant and wished to congratulate him on his success. He agreed with Dr. Parker that the moving picture had come to stay and that as yet its proper place in relation to experi-

mental medicine, bacteriology, and so on had not been fully attained; much remained to be accomplished.

DR. CHANCE said Dr. Parker's machines were in the crude stage of the early models, yet so accurate were they in their adjustments that it was doubtful if the elegant and highly polished products about to be put on the market could be capable of greater satisfaction than was shown by the one exhibited tonight.

In this connection, Dr. Chance was reminded of his association, at Amsterdam, with an aged English oculist who intended to visit Utrecht and go once again to Donders' laboratory to see the simple and quite crude appliances with which Donders had obtained his results so accurately and precisely.

Congenital total color blindness

DR. W. E. FRY (by invitation) said that congenital total color blindness was a moderately rare condition; up to the present time there had been but four reports, which included seven cases from this country.

These cases were unusually uniform in the characteristics which they presented. The following six points were the ones most frequently noted: amblyopia, photophobia, nystagmus, shortening of the red end of the spectrum, displacement of the brightest part of the spectrum from the yellow towards the green, and frequently central scotoma.

Miss C. T., aged twenty-three years, was first seen in Dr. Holloway's office August 28, 1929. Her case was later on studied at the University Hospital. She stated that on a bright day her vision was so poor that she was unable to go about alone, but that in dim light, as in the evening, she was able to get about very well. There was apparently no necessity for dark adaptation.

The patient was totally color blind. To her, different colors had different amounts of brightness, but she was unable to name colors from their different luminosities. Her vision was 6/60 in the right eye and 6/30 in the left. Her eyes were negative externally and there were no fundus changes. The visual fields for one and two degrees white objects were normal in size and outline and there was no central scotoma. The luminosity curve corresponded to that of the achromatic scotopic luminosity curve of a person with normal color vision.

Discussion. DR. DE SCHWEINITZ said total congenital color blindness, the eyes being normal in all other respects, must be very unusual. He had seen one such case about thirty years ago. The patient was a healthy woman, of Quaker extraction; her eyes were normal in all respects, but she had practically complete color blindness. Because of the deep interest of the late Dr. William Thompson in all matters pertaining to color vision, the patient was referred to him for study. What the ultimate results were he could not report, as she did not return either to Dr. Thompson's or his care.

It would seem that such a patient must be excluded from the congenitally totally color-blind, who have diminished visual acuteness, often dread of light, nystagmus, and in whose visual field scotomas could be demonstrated, but in whom curiously enough, dark adaptation remains normal.

DR. CHANCE said he wished that some other title for this clinical entity might be had: "color blindness" had a pretty well fixed clinical aspect. In ordinary color blindness, as a rule, there were no pathological changes; the patients came because they were simply unable to distinguish colors.

He said that he had found it difficult to make a complete study in private cases, because such patients were rather sensitive about their condition and rejected, if they did not actually resent, overtures to submit to the tests. He cited instances in his experience which occurred in those who were strict adherents to certain pietistic religious customs, among whom numerous well known cases had arisen; they were evidently dependent upon intermarriage between adherents.

A. G. FEWELL,
Secretary

ROYAL SOCIETY OF MEDICINE, LONDON

Section of Ophthalmology

June 13, 1930

MR. CYRIL H. WALKER, president

Experiment in keratoplasty

MR. J. W. TUDOR THOMAS said that, at the termination of his first four years of experimental work in efforts to carry out transplantations on rabbits' corneæ, the results he had achieved had been so poor that it had seemed hopeless to expect to obtain transparent grafts. Since then, however, he had obtained better grafts, which he had demonstrated this year at the annual congress of the Ophthalmological Society.

The purpose of the experiment now described was to ascertain whether the retention of a very minute pedicle of corneal tissue would suffice to enable the graft to maintain its transparency.

He made a rectangular incision into the cornea of a rabbit, the whole corneal thickness being penetrated, but a penicle 2 mm. wide being retained at the postero-superior border. The sides of the rectangle measured 7.5 by 4 mm., and the incision was across the center of the cornea. Four stitches secured the flap in position. There was a good union of the flap, and, with the exception of a marginal scar, the flap later became transparent. It was in this way shown that the keeping of a small pedicle enabled the graft to maintain its transparency. Though there was only a 2 mm. width of pedicle, it sufficed to retain life in the graft without loss of transparency. The graft was cloudy for a week after the operation, and at the end of a fortnight was still slightly cloudy. After three weeks the graft had become sensitive to touch over an area embraced from the 2 mm. pedicle to the posterior 2.5 mm. of the inferior margin. At this time the graft was clear in the sensitive area, also somewhat beyond it, the rest of the graft being only slightly cloudy. At the end of a month the graft was clear except at the marginal scar. In thirteen weeks from the date of the operation sensation was normal all over the scar, except for about a square millimeter near the middle of the anterior end of the graft.

Twenty-eight months after the operation the animal was killed, and microscopical examination of the sections showed that in general the graft was a little thicker than the remainder of the cornea, and that Descemet's membrane was at least as thick as the normal membrane; also the graft stained a little deeper. In the main graft there was no appreciable increase in the number of nuclei; these sections were demonstrated on the screen.

But at the opaque margins of the graft, the following changes were evident under the microscope. The epithelium was thickened, there were six layers of cells, the basal ones being elongated. In this region the stroma contained twice as many nuclei, and there were numerous spindle-shaped spaces between the fibers. Between the free end of Descemet's membrane in the substance of the cornea and the posterior membrane, the tissue fibers were coarser and more numerous, and some iris pigment could be seen at the sites of the anterior synechias, and the pigmented cells were covered by a layer of endothelial cells with new Descemet's membrane. A minute split was discovered between the two layers of Descemet's membrane; in places this split could be seen to extend throughout the whole breadth of the graft. A small detached portion of Descemet's membrane could be seen curled up in the region of the scar near the posterior surface, but covered posteriorly by the new membrane. This showed that detached portions of Descemet's membrane were but little altered in the course of years.

The appearance of Descemet's membrane in this case agreed with the observations of others as to the healing of corneal wounds, namely, that the cut ends of the membrane did not unite, but were joined by the new membrane which was formed, either to unite the cut ends or to fuse with the posterior surface. In this case a new membrane had been formed, which passed quite

across the graft and fused almost completely with the graft's original Descemet's membrane. It seemed clear that the marginal portion of the new membrane must have been formed by the endothelial cells of the surrounding cornea. The specimen showed that a new membrane could be formed under such conditions as obtained in this experiment and over quite a large area, and that it actually covered and fused with the membrane of the graft.

It did not accord with the view expressed by Weinstein that the new membrane was composed of differentiated corneal lamellæ. The experiment showed what a material help the retention of even a small pedicle of corneal tissue was in revitalizing a graft. His experimental experience had been that if a small pedicle had not been retained, even the same method of stitching as in the present case would have produced an opaque graft, and if the present graft had been left without stitches to secure it, the eye would probably have been useless, or at best there would have been a staphylomatous cornea.

If in man a clean perforating wound of the cornea had been sustained (perhaps horeshoe-shaped) it was possible that corneal suturing might again give the patient a useful eye, whereas a pad and bandage application might result in adhesion of the iris with a gaping wound, necessitating removal of the eye. Such an accident as a penetrating wound of the cornea might occur in a man's only eye, and if this grafting could be done without the risk of sympathetic trouble supervening, it seemed very desirable to try it. A large corneal wound tended to gape, the anterior chamber did not reform, the iris became extensively adherent to the wound, and there was real risk of infection.

Discussion. THE PRESIDENT thought this laborious piece of work would have important results.

MR. HUMPHRY NEAME said that the section shown by Mr. Thomas in which a portion of Descemet's membrane was reduplicated, was reminiscent of the sections seen in old interstitial keratitis. He had had such specimens to examine, either because of the supervention of glaucoma or because a blind eye had ruptured. Sections of such eyes showed a very thick new formation of fibrous tissue behind the remains of the old cornea, and the obviously ruptured Descemet's membrane was curled up in the same manner, and lying at the middle depth of the existing cornea. The new fibrous tissue was fixed and was most obvious in the lower part of the cornea, but in a very inflamed eye there was considerable formation of cellular material in the anterior chamber, which accumulated in the lower part.

MR. J. H. FISHER said it did not strike him that in the case now described by Mr. Tudor Thomas the endothelium had spread in from the periphery to cover the posterior surface of the graft and secrete a new deposit of hyalin material. Apparently all the other tissues of the graft had survived well, and he saw no reason why the endothelial cells, in such an experiment, should not also retain their vitality. It was not, he thought, an ingrowing of epithelial cells from the periphery, but a survival of the cells on the deep surface of the graft, which, under the condition of excessive activity, had produced a second layer of secretion.

MR. MAURICE H. WHITING thought the value of Mr. Tudor Thomas' experiment lay in the possibility of usefully repairing wounds of the cornea, but when a cornea was wounded in actual life, the conditions differed from those in a laboratory experiment. In most cases the wound was caused by a relatively blunt instrument, and, therefore, a good deal of injury was sustained by the cornea, so that infection was very likely to supervene. During the war he had tried on a number of occasions to preserve a wounded cornea by means of a flap, but the attempted suture, under those conditions, in order to secure the wound edges, usually resulted in even greater damage; therefore, he fell back on the simpler pad and bandage to keep the flap in position. Conjunctival flaps he judged to be unsuitable under war conditions.

MR. F. JULER commented on the fact

that Mr. Tudor Thomas seemed to use a suture for each lip of the wound.

COLONEL LISTER spoke of two cases of corneal wound in which conjunctival flaps were successful.

MR. TUDOR THOMAS, in reply, said he did not know whether endothelium survived in the cornea, but probably it did. He agreed that wounds of the cornea in actual life were usually caused by a blunt instrument, and that there was a liability to infection of the wound, but even so, for a plain incised wound, suturing might be useful. In a clean wound, an edge-to-edge corneal suture was best. Animals, he found, tolerated corneal stitches very well, provided they were not inserted entirely through the cornea, but only half way.

(Reported by M. Dickinson)

NASHVILLE ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

June 16, 1930

DR. ROBERT WARNER, chairman

Acute iritis with delayed symptoms

Dr. Herschel Ezell described the case of Mr. R. B. W., who consulted him on May 26, 1930, complaining of blurred vision and inflammation and some pain in the left eye. The condition had been present for two days and the patient thought perhaps he had gotten something in his eye or had "taken cold" in it.

On examination the conjunctiva was found to be inflamed, the vessels extending over the corneoscleral junction, but this vascularization was not marked and was superficial. The pupil was active and the iris was of good color. On everting the lids the mucous membrane was velvety and resembled trachoma in some respects. There was no history of trachoma and there was no other evidence of this disease. A tentative diagnosis of conjunctivitis was made and the patient was put on neosilvol. He was kept on this treatment for two or three days but did not improve.

On June 2nd, which was the fifth day of observation, Dr. Ezell noted some discoloration in the iris, a deep pericorneal zone of redness and a sluggish pupil. The pain had become quite marked by this time. Atropin was used, which dilated the pupil sluggishly. Several synechiæ were then noticed around the margin of the iris. A diagnosis of acute iritis was therefore evident and the patient was put upon atropin and salicylate of soda. A thorough examination was made to determine the cause of the disease, and the patient was found to have four abscessed teeth which were removed by Dr. George F. Seeman on June 10th.

On June 13th the patient's condition had improved considerably; he was free from pain, there was little conjunctival inflammation remaining, and the eye was improving rapidly.

Case of ectopia lentis

Dr. Herschel Ezell reported the case of Mr. D. F. W., aged twenty-eight years, who presented himself on account of almost total blindness. The patient stated that he had never seen well, but for the last two years his vision had been much worse. He had been able to see a little with the right eye until about a month ago. Two years ago he had been hit by a nail in the left eye and since the accident this eye had been blind. There was no history of double vison.

The patient had three brothers, two of whom had normal vision, the other one being blind. The blind brother had lost his vision at the age of eleven and was now thirty-one years old. The cause of this blindness was unknown. His father had not seen well and had worn glasses continually; when reading he had been compelled to hold print very close to his eyes and even then had read with difficulty.

Examination of the patient revealed a very tall robust man whose general appearance, with the exception of his eyes, seemed normal. His vision in either eye was perception of light only. Examination of each eye with focal light showed the crystalline lens dis-

placed upward and outward; there was no coloboma of the iris or choroid so far as could be determined. A view of the fundus was impossible until a mydriatic was instilled and even then an unsatisfactory view was obtained; however, it appeared normal. Glasses did not improve the patient's vision.

Dr. Ezell had considered doing an iridectomy and removing the lenses, but decided that an iridectomy alone was the best procedure. In all events the iridectomy should be done on the aphakic side of the pupil. If this did not improve the vision the lenses could be moved. The outcome of the latter operation was problematical.

Discussion. Dr. W. G. Kennon wished to ask whether the lenses were definitely opaque.

Dr. Ezell replied that the opacities were immature.

Dr. Kennon thought it very doubtful whether there would be any favorable result. Dislocated lenses which he had seen had usually been associated with congenital defects or extremely high myopia. Any highly myopic eye was a dangerous eye to operate upon. Still he felt that this patient had nothing to lose and he suggested needling.

Dr. Robert Sullivan asked whether Dr. Ezell had been able to get any history of congenital eye defects in the grandparents or other relatives. Dr. Sullivan thought most of these cases were congenital. He advised needling.

W. W. Wilkerson, Jr.,
Secretary

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THE BRITISH EMPIRE OF OPHTHALMOLOGY

In August the British Medical Association, for the third time, held its annual meeting in Canada (Montreal, 1897; Toronto, 1906; Winnipeg, 1930). The meetings of the British Association are marked by pomp and circumstance unknown in those of the American Medical Association; but the willingness to hold them outside of Great Britain is a significant evidence of the practical common sense that constitutes the real bond of the British Empire. At the Winnipeg meeting this practical sense was well illustrated in the section on ophthalmology.

The president of the section was N. Bishop Harman, author of a book that has helped to diminish blindness from ophthalmia neonatorum throughout the world. He was also active in the institution of the sight-saving schools and classes which are now becoming a very important means of preventing blindness in eyes damaged in childhood or which are becoming myopic. By the courtesy of the British Medical Journal Mr. Harman's address, dealing with the control of trachoma, will be published later in this Journal. The elimination of trachoma from the schools of London, and also its control in the labor companies in France during the World War, make a dramatic contrast with the epidemic of trachoma that occurred in Europe after the defeat of Napoleon in Egypt.

The ravages of "Egyptian ophthalmia", leaving forty blind in one and fifty blind in both eyes from 636 cases in a single battalion, led in 1805 to the establishment of the clinic which grew into the Royal London Ophthalmic Hospital, and which is known throughout the world under the name of "Moorfields". Rodgers and Delafield learned ophthalmology in that clinic, and came back to found the New York Eye and Ear Infirmary; and from that clinic Edward Reynolds returned to operate on his father for cataract, and to start

the Massachusetts Charitable Eye and Ear Infirmary. Knowing of that clinic, the grocer James Wills left his fortune to establish the Wills Hospital in Philadelphia. Among those who worked at Moorfields under Benjamin Travers were three who went to India. Richardson in Madras founded an eye infirmary which became the Government Ophthalmic Hospital; while other eye hospitals were founded by Jeafferson at Bombay and Egerton at Calcutta. During the first seven years the London clinic was open to medical students, 412 received instruction. Thus "Moorfields" became a leading center for instruction in ophthalmology. In the first thirty years 1,320 physicians and surgeons were taught there.

This spread of British ophthalmology and of its practical effectiveness to other parts of the world is in contrast with the relatively restricted influence of the clinics which had been established in Budapest and Vienna a generation earlier. These only became widely known when the hundreds of ophthalmic surgeons that had felt the influence of the London hospital began to look to other European centers at which they could find facilities for the clinical study of ophthalmology.

The practical side of ophthalmology has been recently advanced by the working out in London of a plan for obtaining pictures of the fundus in colors by making photographs of the eyeground and coloring them by hand. This method has been developed under the supervision of Mr. A. W. Head, so widely known through the pictures he made for Frost's "Fundus oculi", and through the atlas published by Casey A. Wood on the fundus oculi of birds. They are being offered to the medical profession by Hamblin of London. A considerable series of such pictures was shown by Mr. Vernon Cargill at the Victoria meeting of the Pacific Coast Oto-Ophthalmological Society. Mr. Cargill also read at the Winnipeg and Victoria meetings a very practical paper on the management and treatment of incipient cataract, and his paper will also appear later in this Journal.

A most striking manifestation of the practical trend of British ophthalmology is to be found in the recent lectures by Miss Ida C. Mann, of London, given in October last at Denver, then at Chicago, and then at Baltimore. Some of these lectures have been given each year in the course leading to the Oxford diploma in ophthalmology. Embryology has commonly been thought of as an ultrascientific subject, touched on by teachers of anatomy and physiology in our medical schools; but having only minor practical importance. Miss Mann's lectures show that an understanding of embryology, even as it relates to the development of the eye, is a most practical path to an understanding of the whole subject of evolution; and they throw new light on the anomalies of the eye, the hereditary and familial conditions that affect it, and important problems of ophthalmic pathology.

In the last few years there has been a recurrence of the disposition of American students to seek the medical centers of continental Europe for instruction in ophthalmology. The practical character of the teaching given in Great Britain should not be overlooked; nor should the rapid extension of facilities for learning ophthalmology in America be ignored.

Edward Jackson.

WHY WASTE SUNLIGHT?

Alike in technical and popular literature, so much has been written about the benefits to be derived from exposure to the chemically active rays of sunlight that most laymen are familiar with the general facts of the subject, and, especially in some countries and in the more educated sections of the population, a good deal of attention is being paid to the acquisition of sunburn, either of the natural or of the artificial variety.

An obvious development from this point of view is the attempt to discover a means of making at moderate cost a sort of window glass which will transmit ultraviolet rays to the interiors of our offices and dwellings.

Is it not therefore rather surprising that our great cities still tolerate the exclusion of so large a percentage of the sun's rays from their outdoor atmosphere, especially during the winter months? It would of course be preposterous to suppose that all smoke could be excluded from a large city. But smoke consumption is a practical problem which is capable of solution to the extent that citizens and their public officials show themselves really interested in it. Even London, England, with its reputation for dinginess, and in spite of the dense fogs which are created by the marshy lands along the estuary of the Thames, has shown that much may be accomplished by satisfactory city ordinances and impartial administrative efficiency. Smoke inspectors take actual photographs of columns of smoke whose density is apparently beyond that permitted by the law, and convictions are established upon the basis of these photographs.

Many cities of the United States have smoke ordinances which they do not enforce, because of public apathy and private selfishness. This is notably true of a city which, as a health resort, justly prides itself upon its high percentage of sunny days, namely Denver, Colorado, where in the business section upon any cold winter morning a huge pall of smoke goes far to neutralize the advantages derived from a remarkable climate.

The United States Public Health Service has recently analyzed the loss of light due to smoke on Manhattan Island, New York City, especially as related to the weather, atmospheric humidity, and the velocity and direction of the wind. The loss of daylight sustained is also affected by the height, shape, and density of the smoke layer.

In the New York tests, comparable records were conveniently obtained at the United States Marine Hospital on the lower end of Manhattan Island, where the air was unusually smoky, and on the roof of a building at the quarantine station on Hoffman Island in lower New York Bay, where the air was comparatively clear.

The results obtained showed a large relative loss of light at the Hudson street hospital, due to smoke. In some cases the average hourly or daily loss was more than fifty percent, while the average percentage of loss for the whole year was 16.6 for clear days, 34.6 for cloudy days, and 21.5 for all days.

The average monthly percentage loss of light showed no marked seasonal effect, but was particularly related to the average monthly relative humidity. For clear days the greatest average monthly loss was 23.1 percent in November and the lowest loss 12.1 percent in May, the corresponding average relative humidities being 64.6 and 39 percent. For cloudy days the losses were 52.7 percent in September and 24.6 percent in December, with relative humidities of 99.4 and 85.9 percent.

The average percentage loss of light, due to smoke, was greater for cloudy days or hours than for clear days or hours; and for the same kind of sky, clear or cloudy, the loss of light increased with increase of relative humidity.

It happens in so many departments of life that what we gather in with one hand we throw away with the other; and this is largely true of our pursuit of health. In any very large city, most business and industrial life is carried on by artificial light instead of by daylight; while, at the time of year when the worker is most in need of the stimulating effects of sunlight, he is most completely deprived of them, even during his brief outdoor intervals, by a cloud or column of smoke.

W. H. Crisp.

SUBSCRIBERS AND ADVERTISING

Readers of the Journal and especially contributors to its columns will be interested in a recent analysis of the distribution of the Journal. This analysis was made in order to determine whether geographic factors, the location of medical centers or of those famous in ophthalmology, or merely population determined this distribution,

and also in order to be able to say how broad a field was reached by those using the Journal as an advertising medium.

The striking fact is that the number of subscribers varied almost directly with population. New York was first, Pennsylvania second, and Illinois third, very closely followed by California. Next came Ohio. Massachusetts was sixth, with Missouri only slightly behind. Then followed Minnesota, Texas, and Michigan, with almost equal numbers. No state was without representation.

Another point of decided interest was that twenty percent of the subscribers lived outside of the United States.

This enumeration was made at the time when a letter was being sent to nonsubscribers among those known to be practicing ophthalmology. Unfortunately, by mistake, a few of our actual subscribers were sent this letter. Some of the errors were simply clerical, in other cases the subscriber was listed on our mailing list at an address differing from that in the directory of the American Medical Association; while occasionally there was confusion between home and office addresses. From many of these subscribers we received most courteous letters; some of them being so very appreciative that we almost failed to regret a mistake that had elicited such an agreeable response.

As above mentioned, the distribution of the Journal is naturally of importance to our advertisers. The average reader often devotes very little thought to the advertising matter unless it deals with something in which he is especially interested. The American Journal of Ophthalmology has consistently endeavored to limit its advertising pages to those firms who conduct an ethical business directly related to ophthalmology. Not infrequently we have had to reject advertising matter which suggested a merely commercial relationship between ophthalmologist and patient. By these restrictions we aim to protect our readers and to maintain the high standard of the Journal. In return, our association with business organizations of this quality will be furthered by the cooperation of our subscribers in patronizing those who advertise in the Journal.

Lawrence T. Post.

BOOK NOTICES

Lehrbuch und Atlas der Spaltlampenmikroskopie des Lebenden Auges. (Textbook and atlas of slit-lamp microscopy of the living eye). By Alfred Vogt, Zurich. Volume I, comprising technique—cornea and anterior chamber (second edition), xi and 313 pages, with 692 mostly colored illustrations on 83 plates. Price 178 marks, Julius Springer, Berlin, 1930. (Volumes 2 and 3 in preparation.)

In his preface the author says: "Since the appearance of the first edition of the 'Atlas of slit-lamp microscopy' in 1921, the issue of which was soon exhausted, new available clinical material has so rapidly accumulated that the publication of a new edition is fully justified".

A large number of the cases shown in the old atlas have been included in this new textbook. The innumerable new findings in cornea, anterior chamber, iris, lens, and vitreous, their specific varieties, and the possibility to view them rapidly and compare them in a great mass of clinical material promise an unprecedented survey of biological happenings.

The author expresses this in the conviction that nowhere in the study of medicine have we such a direct view of bodily metabolism as is possible with the combination of the slit-lamp and the microscope. This method of biomicroscopy has now become the common property of all ophthalmologists, though the surmounting of the technical obstacles has not quite enabled all of them to keep in step with its advances.

The importance of, and the principles of observation by, the thin "optical section" are not universally compre-

hended. The author deems the dissemination of this knowledge one of the chief missions of this book, thus helping to fortify the conviction that slit-lamp microscopy belongs to the armamentarium of the ophthalmologist in equality with the ophthalmoscope.

In the new book the technique and instrumentarium are fully illustrated and explained in detail and the refinements in diagnostic observation made possible with the usual as well as the very narrow slit-beam (optical section) are elucidated.

The findings by intravital staining, deposits, and aberrations within physiological limits are studied.

Linea cornea senilis, cornea guttata, and cornea farinata are some of the newly adopted terms and isolated clinical entities among senile changes of the cornea. Pigmentation in its varied phases as well as the great variety of corneal scar manifestations are elaborated on and pictorially assembled and classified.

A special chapter is devoted to the ocular manifestations of pseudosclerosis (Wilson's disease). The author has exhaustively elaborated on this subject in many contributions which have appeared from time to time in the Klinische Monatsblätter für Augenheilkunde. The results of these investigations, the manifestations of silver and copper impregnation of ocular tissues, are depicted in detail in the atlas.

The complex subject of corneal inflammations and their varying final manifestations is fully discussed. The clinical characteristics of parenchymatous keratitis in all its diversity of detail from its incipiency, and its types of vascularization, as well as the varied clinical pictures of remnants, are depicted in orderly sequence. Among the latter are folds of Descemet's membrane, "Glasleisten", as evidences of massive exudates in the anterior chamber, permanent vascularization, and the preference of permanent opacities for involving certain corneal parenchymal and delimiting zones. Ephemeral phenomena within the anterior chamber and the aqueous in health and disease are shown and their etiological significance discussed.

A final chapter deals with the effects of trauma, such as contusion, perforating injuries, foreign bodies, and vitreous herniæ.

Professor Vogt and his collaborators will be congratulated by all progressive ophthalmologists for this wonderful portrayal and analysis of new observations gleaned from an apparently limitless wealth of clinical material.

The illustrations are evidence of what an artist in conjunction with modern lithography at its best can do in the way of faithful reproduction in colors.

To the ophthalmologist interested in refinements in ocular diagnosis the work dedicates a vast collection of new and characteristic slit-lamp pictures unrolled in panoramic splendor.

Robert Von der Heydt.

Die Zerebrospinalflüssigkeit (the cerebrospinal fluid). By Professor Dr. med. V. Kafka, Hamburg-Friedrichsberg. Octavo, 400 pages, with 46 illustrations in the text and 25 tables. Paper covers, 30 marks. Franz Deuticke, Leipzig and Vienna, 1930.

This highly scientific work touches only to a very limited degree the domain of ophthalmology, although it will have a special interest for laboratory workers in problems associated with the chemistry and secretion of the intraocular fluids. Rather from the purely scientific than from the immediately practical point of view, it undertakes a monumental review and summing up of the numerous investigations which have occurred within the limits of the present century with regard to the physiology and chemistry of the cerebrospinal fluid.

The author remarks that the theoretical investigation of the cerebrospinal fluid is much more important than the current problems of diagnosis, since we still have a great deal to learn concerning physiology and physiopathology of the central nervous system as exhibited in the fluid.

This volume has intentionally avoided as much as possible the diagnostic and other practical questions, and, in contrast with most other works on the subject, merely seeks to set forth the present position of investigation with regard to the fluid and to draw therefrom a series of theoretically important conclusions. For this purpose the complete literature of the subject has been surveyed and evaluated; and the magnitude of this undertaking may be understood from the fact that, although the author of this volume has used his own judgment as to selection of significant references, the bibliography which he appends covers eighty-eight large pages.

The author's long acquaintance with this subject thoroughly justifies the emphasis which he has placed upon his personal views. In spite of its highly technical character, the text is very elegantly and readably written.

In the special chapter in which the cerebrospinal fluid is compared with the aqueous humor and also with the labyrinthine and other fluids, the author remarks that the aqueous resembles the cerebrospinal fluid to the extent that it probably arises from the ciliary processes, the structure of which resembles that of the choroidal plexus of the brain; while the aqueous is perhaps also derived from the choroid, which may possibly be regarded as functioning like the meninges. But, while the aqueous unquestionably bears a close resemblance to the cerebrospinal fluid, it would be a great mistake to regard the two fluids as identical.

The value of this volume is further enhanced by a careful subject index of twenty-eight pages. *W. H. Crisp.*

Introduction à l'étude des hypertensions oculaires (Introduction to the study of ocular hypertensions). By Georges Bonnefon. 143 pages, with drawings in the text. Stiff paper cover, 45 francs. G. Doin et Cie, Paris, 1931.

This brochure states the author's personal views as to the physiological basis of normal ocular tension; and also concerning the value of various medical and surgical procedures employed in the treatment of glaucoma. Bonnefon classifies ocular hypertension under two types: static and dynamic hypertension; the first occurring without and the second with a departure from the equilibrium between vascular pressure and the pressure of the intraocular fluids. He points out that Graefe's iridectomy does not always cure acute glaucoma, and that Lagrange's sclerectomy does not always cure simple glaucoma, and associates these facts with certain exceptions which he establishes as to the treatment of individual cases. He expresses himself against temporizing with the long continued use of drugs in cases which will ultimately require operation and in which the only chance of safety rests in operative intervention. *W. H. Crisp.*

Das Augenzittern der Bergleute, seine soziale Bedeutung, Ursache, Häufigkeit, und die durch das Zittern bedingten Beschwerden (Miners' nystagmus, its social significance, cause, frequency, and the difficulties occasioned by the nystagmus). By Professor Dr. M. Bartels and Dr. med. W. Knepper. Octavo, 49 pages, with nineteen illustrations. Paper covers, 6.90 marks. Verlag von Julius Springer, Berlin, 1930. (Issued by the Deutsche Gesellschaft für Gewerbehygiene in Frankfurt a. M.

The senior author is well known for his writings on various social aspects of ophthalmology. In the preface attention is called to the fact that social legislation and medical science are inseparably related to one another, and that only scientifically trained physicians can deal with the questions which arise in relation to the etiology of disease and as to payments to be made under the various schemes of social insurance. Nystagmus is an interesting example of the conditions in which medicine and social economics are closely related.

The last twenty years have witnessed a wealth of scientific study as to the relationship between oculomotor balance and the mechanism of equilibrium, and Knepper has contributed to this investigation important researches which are set forth in this volume.

Most recent writers are agreed that deficient illumination in the mine is the principal cause of miners' nystagmus, and this view is strongly supported by the experiments of Bartels and Knepper. Thus there were twice as many nystagmic miners in the mine with the poorest illumination as in the best illuminated mine. The idea that nystagmus is especially to be blamed upon the necessity for constantly looking upward in the mine is here regarded unfavorably.

Treatment calls for constant stay in daylight and cessation of mine work. As a prophylactic measure, all mine workings should be adequately equipped with electric lamps.

Further study of the subject should include exact observation of the condition of miners below and above ground. Industrial compensation plays an important part in the statistics as to the apparent incidence of miners' nystagmus. *W. H. Crisp.*

L'Extraction totale de la Cataracte par l'érisiphaque (complete extraction of cataract by the erisiphake). By Gilbert Cadilhac. 76 pages, illustrated, paper covers, 15 francs. Masson et Cie, 1927, Paris.

The operation here treated is naturally that of Barraquer. The author insists that the operation can be learned by any skillful operator, and he quotes the following statement by Professor Fuchs: "It is true that Professor Barraquer possesses a great personal skill acquired by use of this method; however, the difficulties which it presents do not appear to me to be much greater than those of other procedures, so that a skillful operator will quickly overcome them". The author adds that a purely theoretical study of the technique is not sufficient, but the beginner must have seen the operation done by an expert.

The operation is particularly recommended on account of the extreme simplicity of the postoperative course, iritis especially being so rare that atropin is no longer necessary.

Barraquer's personal statistics, now including one thousand cases, are analyzed in considerable detail. In 893 of these there were no untoward circumstances during operation: the operative accidents include 68 hemorrhages in the anterior chamber, slipping of the vacuum cup in 43 cases, rupture of the capsule in 60 cases, vitreous prolapse in 49 cases, and iris hernia in 18 cases. No postoperative complications were observed in 787 cases: postoperative accidents include prolapse or incarceration of the iris, 28; incarceration of the capsule, 17, hyphema, 91; iritis, 19; late iridocyclitis, 12; detachment of the choroid, 19; detachment of the retina, 7; vomiting, 24; and other ocular disturbances in smaller numbers, as well as some general disorders not connected with the operation. A clear black pupil was obtained by 947 cases, 767 having a round central pupil. The vitreous was transparent in 918 cases. The tension remained normal in 951 cases (13 cases of increased tension, 31 with diminished tension, and 5 with secondary glaucoma). The record showed 299 cases as having no astigmatism, 524 as having astigmatism between 0.5 and 2 diopters, 165 as having astigmatism from 2 to 6 diopters, and 7 as having astigmatism above 6 diopters. The visual acuity obtained was 10/10 in 680 cases, between 10/10 and 7/10 in 145 cases, between 7/10 and 4/10 in 108 cases, between 4/10 and 1/10 in 58 cases, and between 1/10 and nil in 9 cases. These results were obtained in spite of an important number of coexisting lesions which diminished the vision.

If any operative step has been inaccurately performed (cutting the flap, iridectomy, and so on) the procedure of phacoerisis should be given up and the operation completed by ordinary methods.

A bibliography of nine pages is appended. The operative technique, as well as the various types of complication which may occur, is carefully discussed. *W. H. Crisp.*

Succès opératoires dans le traitement du décollement rétinien (Operative successes in the treatment of retinal detachment). By Gabriel P. Sourdille. Paper covers, 112 pages, illustrated. Amédée Legrand, Paris. Price not stated.

This monograph carries as a subhead the question "Is it indispensable to close the tear?" Practically the only rival to Gonin's ignipuncture, in the operative treatment of retinal detachment, is the method of Gilbert Sourdille, who makes multiple scleral punctures with a bistoury and then injects a solution of cyanide of mercury beneath the conjunctiva. Both surgeons produce an adhesive inflammation between the retina and choroid and sclera. Gonin insists that is necessary to find a retinal tear and block it, while Sourdille is equally certain that the tear is secondary and not primary and that no importance is to be attached to finding and blocking the tear.

The present monograph is by the son of Gilbert Sourdille. The older Sourdille has written little concerning his own technique. The son offers a rather careful comparison of the two methods, as regards the selection of cases and with statistics of the results obtained. He reviews the various theories as to the causation and treatment of retinal detachment.

The following are stated as the surgical essentials according to Sourdille: The creation of artificial adhesions between the choroid and retina, after evacuating the subretinal transudate or exudate, and utilizing the force of gravity to allow the retina to fall into its normal position. The cicatricial adhesion should be sufficient but not excessive, and here lies the great technical difficulty, according to the present author. The reaction produced by surgical intervention must not be excessive either as related to the retina or to the vitreous.

Sourdille is said to have used two procedures, the subconjunctival injection of a 1:1000 solution of cyanide of mercury, and galvanocauterization. The first procedure is reserved for very extensive detachments, in which it would be indiscrete to make a sufficient number of punctures at one sitting. Thus he regards the cyanide injections as indicated in complete detachment, the only inconvenience of this method being the rather severe pain during the hours following the operation. This pain is best avoided by the addition of acoin, the analgesia from which persists a whole day.

The galvanocautery is reserved by Sourdille for the smaller detachments in which two or at the most three punctures are sufficient. As a general rule, the galvanocautery is also reserved for detachments without great elevation. The extremity of the galvanocautery should touch and perforate the retina, yet it should not be carried more than two or three millimeters into the eyeball. Adhesive reactions should be produced throughout the extent of the detachment, and particularly in the upper part of the detachment, where there is greater tendency to relax.

The older Sourdille is most emphatic as the necessity of the patient being completely immobilized for several weeks, and he maintains noncompressive binocular dressings for six to eight days.

In his analysis of the results reported respectively by Gonin and Sourdille, the writer of this volume points out that Sourdille is willing to undertake operation after a very much longer persistence of the detachment than is accepted by Gonin. Thus, out of seventy-one cures reported by Sourdille among 169 operations, nineteen were obtained with detachments more than three months old, and nine with detachments more than six months old. However, the one hundred cases reported by Gonin at the Amsterdam congress included six cures in cases of more than three months' duration.

The author prefers the electrocautery to the Paquelin thermocautery whenever cauterization is resorted to.

W. H. Crisp.

A quantitative study of achromatic and chromatic sensitivity from center to periphery of the visual field. Presented to the faculty of Bryn Mawr College in partial fulfillment of the requirements for the degree of doctor of philosophy. By Hazel Austin Wentworth. 192 pages, illustrated. Paper covers. Published for the American Psychological Association by Psychological Review Company, Princeton, New Jersey.

The work included in this dissertation is to some extent along the lines of studies published by Ferree and Rand in the Archives of Ophthalmology and the American Journal of Ophthalmology.

The chromatic thresholds were determined under light and dark adaptation. The achromatic thresholds were determined with a completely dark-adapted eye at the same points in the field as were used for the chromatic thresholds. Special attention was given to variations in the light and color sensitivity in the dark-adapted eye in and around the macula.

The following results of special importance may be mentioned here: The sensitivity to yellow in the different quadrants was found to be from 276 to 5,170 times as great at the center as at the periphery. From point to point in a given meridional quadrant and at corresponding points in different meridional quadrants there were great irregularities in the ratios of sensitivity to different colors; small regions of decreased sensitivity to one color being found with no loss of sensitivity to the other colors. With a high intensity of stimulus the limits of chromatic sensitivity to yellow were found to be coextensive with those for white light vision; and at all intensities, with stimuli equalized in energy, the limits for yellow fell outside those for red, blue, and green. The interlacing of limits for red, blue, and green is not necessarily a pathological phenomenon but rather a characteristic relationship for the normal eye. A general tendency was found for the area of the color fields to vary with the logarithm of the intensity of the stimulus light. Under dark adaptation, color sensitivity was found not to extend to the periphery for all wave lengths. The retina was most sensitive to green at every point investigated, and the ranking as to sensitivity from highest to lowest was in general green, yellow, blue, red, except that at the fovea and at a point in the nasal quadrant five degrees from the fovea the sensitivity to blue was greater than to yellow.

W. H. Crisp.

Handbuch der gesamten Augenheilkunde; sections 491 and 492, continuing **Die Krankheiten der Orbita** (Diseases of the orbit). By A. Birch-Hirschfeld. 154 pages, illustrated, 16.80 marks. Verlag von Julius Springer, Berlin, 1930.

This continuing section is a fragment of the chapter on diseases of the orbit, which it carries from page 895 to page 1048; the total number of pages in the whole chapter being 1048. It contains the indexes for this chapter and for the chapter on pulsating exophthalmos.

W. H. Crisp.

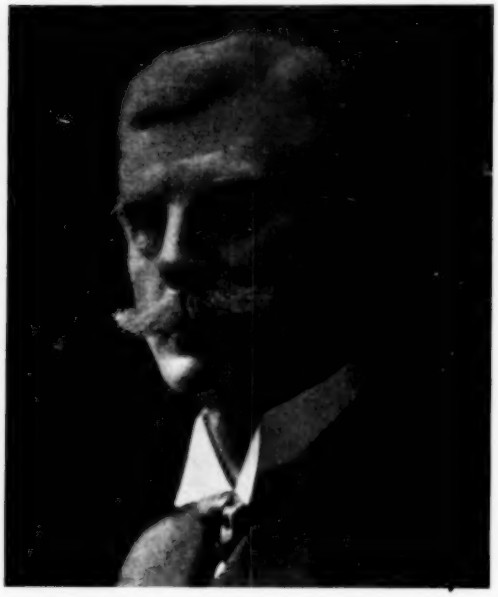
OBITUARIES

David Nichols Dennis

On November seventeenth last ophthalmology lost one of its most highly esteemed and distinguished representatives in the death of Dr. David Nichols Dennis of Erie, Pennsylvania. He had been in ill health some years before and had been obliged to take an extended rest, but he had recovered and resumed active practice when the end came.

Dr. Dennis was of a class of scholarly physicians, now unfortunately growing fewer, whom the medical profession can ill afford to lose. A man of fine medical attainments, thoroughly

grounded in ophthalmology upon the basis of a comprehensive study of general medicine and surgery, he represented the best type of American physician. Born in Grafton, Massachusetts, in 1858, he came of old New England stock, receiving his degree from Jefferson Medical College in 1881. He had an international reputation as a writer and ophthalmic surgeon, and was noted for the number of successful operations which he had performed. His diversions were those of a cultured gentleman and they formed an integral part in his life. He had an intense love



DAVID NICHOLS DENNIS, 1858-1930

of music and of the fine arts, and had gathered an unusual and varied collection of books. He had traveled widely and intelligently and was an interesting conversationalist. He possessed an unusual charm of manner and impressed those who met him with a sense of his combined strength and gentleness. He had developed an artistry in photography and had a great love of the out-of-doors. He had educated himself to an unusual degree for the enjoyment of his leisure hours. His passing was as beautiful as was his life. Sitting in his chair at his favorite window in the late afternoon at the close of the week reading a work on ophthalmology, his heart ceased to beat and almost at once he had passed from this world into the next.

Dr. Dennis was a member of many organizations, social, medical, and cultural. These included the Society of Colonial Wars of New York, the Sons of the American Revolution, the American Ophthalmological Society, the Buffalo Ophthalmological Society, the Tyrian Lodge of Masons, the University Club, and the American College of Surgeons.

He leaves his widow, Mrs. Maude Morrow Dennis, and three children, Dr. Edward Parker Dennis, Mrs. Harrison Dunn, and Miss Camilla Dennis of Boston, Massachusetts.

His memory will always be precious to those who were fortunate enough to be numbered among his friends.

Park Lewis.

Derrick T. Vail, Sr.

Dr. Derrick T. Vail was clinical professor of ophthalmology in the Laura Memorial Medical College, and staff ophthalmologist in the Associated Presbyterian Hospital, Cincinnati, 1895 to 1903; clinical professor of ophthalmology at Miami Medical College from 1896 till 1909, when it merged with the Ohio Medical College to form the college of medicine of the University of Cincinnati. He was then made chief of the eye clinics and clinical professor of ophthalmology, which positions he held till 1912, when he was made professor-emeritus of ophthalmology of the college of medicine of the University of Cincinnati. In 1901 he was elected to the visiting staff of the Cincinnati Municipal Hospital as ophthalmologist, and he continued in this capacity in the new Cincinnati General Hospital when it was founded to replace the old Municipal Hospital, until 1912 when he was appointed consulting ophthalmologist. He was visiting ophthalmologist to the Deaconess' Hospital in Cincinnati from 1902 till 1912.

Dr. Vail was a founder member of

the following societies and institutions: the American Academy of Ophthalmology and Otolaryngology, (president in 1908); the Oxford (England) Ophthalmological Congress (1909); the American College of Surgeons (1913); the Gorgas Memorial Institute (1916); the Cincinnati Ophthalmological Club (president in 1919).

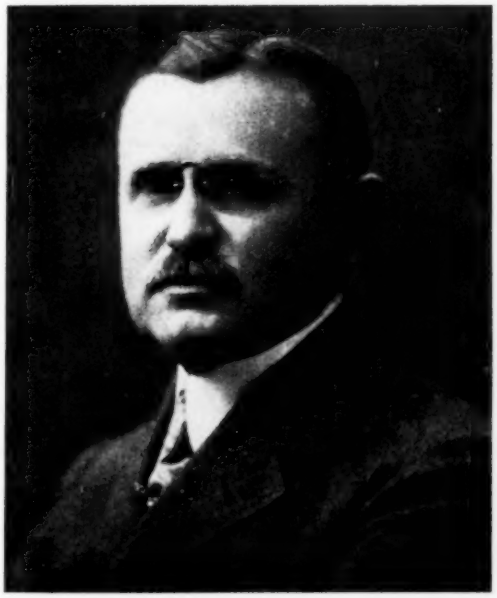
After ten years' association with Dr. C. R. Holmes, Dr. Vail located for himself in 1899. By 1906 his practice had grown so heavy that he purchased a Catholic Boys' Home Building at 24 East Eighth Street, remodelled it, and established his private offices and the Vail private hospital there. The entire building was devoted exclusively to ophthalmology and otology in his own private practice. He was known as a resourceful and skillful operator. He gave up the practice of otology and rhinology in 1916, and thenceforward devoted his entire time to the practice of ophthalmology. In 1925 his second son, Dr. Derrick T. Vail, Jr., joined his father in the practice of ophthalmology.

Derrick T. Vail's life scheme was to improve his own qualifications and advance the progress of his profession. To this end he made three trips to Europe, visiting the clinics of London, Hamburg, Zurich, Berlin, and Vienna (1899, 1909, and 1911); and two trips to India and around the world (1909 and 1924). He went to India for the purpose of studying Colonel Henry Smith's technique first hand. He came back convinced that the principles involved in the new operation of Smith were sound. He wrote articles on every phase of the subject, and illustrated his points by many of his own drawings, sketches and photographs.

In 1912 Dr. Vail became interested in detachment of the retina. He investigated the various methods of treatment and operations then in vogue, and aroused much interest by declaring that the standard treatment and operations for detachment of the retina were useless in combating it, and that new thought was needed. He also became interested in acute blindness from intranasal disease, and was a pioneer in the investigation of this striking condition.

Perhaps his most outstanding contribution to ophthalmology was his discovery in 1913 and report in 1914 with the bacteriological aid of William B. Wherry, of the first case of tularemia in man, a case of the so-called "oculoglandular type" of tularemia.

His contributions to the periodical literature of ophthalmology were very numerous.



DERRICK T. VAIL, SENIOR, 1864 TO 1930

He wrote the section on the pupil of the eye in health and disease to be found in volume 14 of "The American encyclopedia and dictionary of ophthalmology". The chapter on the intracapsular operations for cataract in volume 2 of the 5th and 6th editions of "Modern ophthalmology" by James Moores Ball was written and illustrated by D. Vail.

Derrick T. Vail was forced to retire from active practice and literary work in January, 1928, after an attack of influenza complicated by myocarditis. He gave up residence in Cincinnati and went to live in "Waukazoo", near Holland, Michigan.

ABSTRACT DEPARTMENT

Abstracts are classified under the divisions listed below, which broadly correspond to those formerly used in the Ophthalmic Year Book. It must be remembered that any given paper may belong to several divisions of ophthalmology, although here it is only mentioned in one. Not all of the headings will necessarily be found in any one issue of the Journal.

CLASSIFICATION

1. General methods of diagnosis
2. Therapeutics and operations
3. Physiologic optics, refraction, and color vision
4. Ocular movements
5. Conjunctiva
6. Cornea and sclera
7. Uveal tract, sympathetic disease, and aqueous humor
8. Glaucoma and ocular tension
9. Crystalline lens
10. Retina and vitreous
11. Optic nerve and toxic amblyopias
12. Visual tracts and centers
13. Eyeball and orbit
14. Eyelids and lacrimal apparatus
15. Tumors
16. Injuries
17. Systemic diseases and parasites
18. Hygiene, sociology, education and history

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6. CORNEA AND SCLERA

Kogan, N. D. **A case of fascicular keratitis under the aspect of serpent ulcer.** Klin. M. f. Augenh., v. 85, Sept., 1930, pp. 404-406.

A scrofulous boy of nine years, affected with lymphadenitis of the neck, had an inflammation of one eye for two weeks. The opaque cornea presented a yellowish, disciform, central ulcer with an elevated progressive opaque margin, without hypopyon. Scrapings from the apparent serpent ulcer contained no pathogenic microorganisms. Under tincture of iodine and iodoform ointment with general medication, the ulcer improved and a reddish gray infiltration at the medial side of the center of the cornea (to which band-shaped vessels coursed from the limbus) showed the typical picture of fascicular keratitis; this explained the speedy recovery. Typical serpent ulcer being very rare in children, one must think of the possibility that in scrofulous patients fascicular keratitis may be a changed serpent ulcer with a good prognosis. *C. Zimmermann.*

Nuri, Fehmi. **A case of episcleritis treated by milk injections.** Türk Oftal. Gaz., 1930, v. 1, April, p. 401.

Fehmi reports a case of episcleritis of unknown etiology which responded most favorably to parenteral injections of milk. *George H. Stine.*

Nuri, Fehmi. **A case of neuroparalytic keratitis in the course of amebic dysentery.** Türk Oftal. Gaz., 1929, v. 1, July, p. 182.

Ocular complications of amebic dysentery are uncommon. The tissues usually involved are the conjunctiva and uveal tract, although optic neuritis, keratitis, paresis of accommodation, and bilateral dacryoadenitis have been reported. The author reports a case of frank unilateral neuroparalytic keratitis complicating this condition. He believes the eye condition to be due to the effect of the dysentery toxin upon the nerve. *George H. Stine.*

Pillat, A., and Yang, C. S. **The blood picture in keratomalacia of adults.** Arch. of Ophth., 1930, v. 4, Sept., pp. 309-314.

Thirty-five cases of keratomalacia were studied. Among these, seven showed definite anemia without other cause. The anemia that appeared in eight others might be explained by chronic infectious diseases such as tuberculosis, kala azar, empyema, and para-typhoid A fever. Other cases, however, with such complications did not show a similar picture of anemia.

This series is not conclusive as to whether a deficiency of vitamin A alone can cause anemia or not, but in the seven cases where no complications were found no deficiency in vitamins

B, C or D was noted. The vitamin A deficiency was the only one recognized. In severe cases of keratomalacia there is obviously a disturbance of nutrition, whereas in many mild cases there is no appreciable change in the blood picture.

M. H. Post.

von Plata, P. **Clinical and histopathological contribution on scleroperikeratitis (Szily).** Klin. M. f. Augenh. 1930, v. 85, Sept., pp. 384-396. (6 ill. and 3 colored plates.)

Three clinical histories with anatomical findings in one case are presented. They show mushy, reddish-blue swelling of sclera and episclera, infiltration of the marginal corneal parenchyma, concentrically progressing towards the center. The inflammatory phenomena could not be influenced, but in some cases a later regression with improvement of vision took place. There were no signs of manifest or latent tuberculosis and no reaction to tuberculin.

Anatomically characteristic nodules in ciliary body, sclera, and episclera, consisting of a light nucleus of epithelia and a wall of round cells, were observed, with giant cells of the Langhans type at numerous points. Many nodules contained blood vessels and there was no tyrosis, which speaks against tuberculosis. In the deeper portions of the sclera, leucocytic infiltration with destruction of tissue predominated. The choroid, if involved, showed plasmocellular infiltration and a few small necrotic foci.

C. Zimmermann.

Schall. **New therapy of filamentous keratitis.** Klin. M. f. Augenh., 1930, v. 85, Sept., pp. 406-408.

Convinced that lacrimal secretion is an important factor in the etiology of filamentous keratitis, Schall found in ten obstinate cases (through Schirmer's experiment) that the affected eye was drier than the normal eye. Because of the known stimulating action of Roentgen rays on the secretion of other glands he applied these rays to the lacrimal gland for eight minutes medially and down, and then for nine minutes laterally and up. One treatment sufficed to insure the better secretion of tears shown by Schirmer's experiment, and to cause subsidence of the feeling of dryness. The good results were surprising. (Ten case histories.)

C. Zimmermann.

Togano, Nikyuzi. **Three family trees of blue sclerotics.** Zeit. f. Augenh., 1930, v. 72, Aug., p. 36.

The author has collected and analyzed the family trees of three families affected with blue sclerotics. The families are exhaustively described, but the study adds nothing new to our knowledge of this subject.

F. H. Haessler.

Török, Ervin, and Redway, L. D. **Three cases of keratoconus:** final report. Arch. of Ophth., 1930, v. 4, Sept., pp. 348-349.

In a previous paper it was noted that three cases of keratoconus showed apparent lack of calcification in the bones of the skull. In order to determine whether any deductions could be drawn from these observations, ten additional cases were studied. Three of the latter showed a similar deficient calcification; the other seven were normal. There were no changes in the long bones. While vision improved under thyroid treatment, the conus did not change; the improvement was, therefore, attributed to a general increase in metabolic tone.

The authors conclude that there is no relation between calcium metabolism and keratoconus, as far as can be demonstrated at the present time, and that the administration of thyroid gland derivatives is of no permanent value.

M. H. Post.

Trantas. **The trachomatous facets of Bonnet and the perilimbic follicles of the cornea of trachomatous pannus.** Arch. d'Opht., 1930, v. 47, July, p. 444.

By applying a transilluminator to the lower portion of the cornea, one sees with the binocular microscope peri-

limbic follicles at the upper margin, or their remains, in about sixty-four percent of trachomatous eyes. These perilimbic follicles appear white and may be considered practically specific of trachoma. They occur in a larger percentage of cases and are more specific than the facets of Bonnet.

M. F. Weymann.

Vejdovsky, V. **Tuberculous interstitial keratitis.** Ann. d'Ocul., 1930, v. 167, Sept., pp. 720-732.

This is a résumé of (1) the opinions of others on tuberculosis of the cornea, (2) two illustrative cases, and (3) a conclusion from an observation by himself and others that there do exist certain signs which differentiate this type of keratitis from other corneal inflammations. The most important of these is the formation of new blood vessels in a treelike arrangement. Of secondary importance are the slow rate of appearance of nodules and the change from gray to grayish yellow and finally to yellow. *Lawrence T. Post.*

Villard, H. **Menstrual episcleritis.** Arch. d'Opht., 1930, v. 47, Aug., p. 534.

A woman forty-two years of age has had attacks of episcleritis of the left eye with each menstrual period for five years. The attacks began eight days before the periods. After removal of blood for a Wassermann test it was found that the next expected attack did not occur. Since then there have been no further attacks as long as a small quantity of blood is removed from a vein eight to ten days before her period.

M. F. Weymann.

7. UVEAL TRACT, SYMPATHETIC DISEASE, AND AQUEOUS HUMOR

Beigelman, M. N. **Chronic anterior uveitis.** Jour. Amer. Med. Assoc., 1930, v. 95, Nov. 29, p. 1658.

Chronic anterior uveitis is characterized by: (1) slow insidious course so that years may pass without serious visual impairment; (2) a primary involvement of the anterior uveal tract; (3) a lack of acute inflammatory signs and symptoms; and (4) the presence of precipitates on the posterior corneal surface. The lack of irritation is only relative; not infrequently the globe becomes congested, corneal precipitates are increased, and some pain is present.

This condition occurs in late lues more frequently than has hitherto been admitted. In the two cases reported, intensive antisyphilitic treatment was of no avail, but most encouraging results followed the use of nonspecific protein therapy. No foci of infection nor evidence of tuberculosis were found in these cases.

Retinal detachment may occur in a comparatively early stage of this condition. Three such cases are reported, and in all three the vision was subsequently lost. The author's theory of the mechanism of detachment in these cases is that the liquefied vitreous may be absorbed through direct contact with the choriocapillaris whenever a tear in the retina is formed, or possibly absorbed through the epithelial surface of the ciliary body. Once a sudden loss of vitreous has occurred, the rigidity of the intact sclera will not allow the eyeball to collapse, and a transudation from the choroid with a resulting retinal detachment may take place. In one of the cases reported, in which the onset of detachment was observed step by step, a surprisingly sudden hypotony immediately preceded the retinal detachment.

The occurrence of transient myopia as the earliest sign of chronic anterior uveitis is emphasized. In Beigelman's case atropin had no effect on the myopia, but the myopic condition gradually disappeared as a typical uveitis developed. This sign is important in the pathogenesis of chronic anterior uveitis; it points toward the primary involvement of the ciliary body with a possible subsequent spreading of the process either through continuity or through an excretion of the causative agent into the intraocular fluids.

George H. Stine.

Holdener, A. **Sympathetic ophthalmia following early enucleation of the offending eye.** Schweizer med. Woch. 1930, v. 60, Sept. 20, p. 896.

Holdener presents five case histories in which a mild iridocyclitis of an obvious sympathetic character followed the prompt enucleation of a traumatically perforated and infected eye. Slit-lamp observations, both before and immediately after enucleation, had failed to show any abnormality. The designation of "metasympathetic ophthalmia" is proposed for this benign form of sympathetic ophthalmia in which only the anterior uvea is involved.

M. Davidson.

Teulières, M., and Beauvieux, J. **The iris angle; its rôle in ocular hydrostatics.** Arch. d'Opht., 1930, v. 47, Aug., p. 497.

The anatomy of the iris angle is discussed. It is concluded that there is a definite more or less constant filtration of the aqueous, of an osmotic nature, through the iris angle in the normal eye. This conclusion was reached after a consideration of the anatomy and physiology of the angle, as well as after some clinical studies. There is probably no definite current of outflow, as this fluctuates according to other conditions such as external pressure on the globe. A colored plate shows the anatomy of the angle. *M. F. Weymann.*

Verhoeff, F. H. **Acute tuberculous iritis: microscopic examination of an eye showing this condition.** Jour. Amer. Med. Assoc., 1930, v. 95, Aug. 23, p. 583.

A man aged sixty-four years with retinitis pigmentosa who had been blind for more than twenty years, developed in one eye an acute fibrinous iritis clinically similar to acute "rheumatic" iritis. Roentgen-ray examination of the chest showed marked evidences of old pulmonary tuberculosis. There was no cough or elevation or temperature. On account of pain the eye was removed about five days after the onset of the subjective symptoms. Microscopic examination showed small recent tuberculous foci in the iris which had given rise to a fibrinous exudate in the pupil. The acute reaction may have been due to an allergic condition of the patient toward tuberculous toxins. Since the case does not conform to any type of tuberculous iritis hitherto recognized, it suggests that some, possibly many, cases of supposed "rheumatic" iritis are due to tuberculosis. (Discussion.)

George H. Stine.

Waldmann, Adalbert. **Clinical observation on the significance of sinusitis in the origin of iritis, and some remarks on the sympathizing character of spontaneous iritis serosa.** Zeit. f. Augenh., 1930, v. 72, Aug., p. 21.

The author describes his observations on ten patients to support his belief that serous iritis is a catarrhal disease which most probably results from a similar infection in the sinus, even in tuberculous and syphilitic patients. It occurs most frequently in fall and winter, and can become endemic during an epidemic of grippe. Sometimes the infection may be transferred from one eye to the other. *F. H. Haessler.*

8. GLAUCOMA AND OCULAR TENSION

Ballantyne, A. J. **Buphthalmos with facial nevus and allied conditions.** Brit. Jour. Ophth., 1930, v. 14, Oct., p. 481.

This contribution is concerned with a correlation and a review of the bibliography of nevus and buphthalmos, nevus and simple glaucoma, nevus and secondary glaucoma, nevus and pseudoglaucoma and nevus and cerebral disease. The author gives the case report of a male baby, aged three weeks, with buphthalmos and large nevus on the left side. The outstanding feature is that it is probably the youngest case recorded.

Whatever the cause may be which produces the cutaneous, meningeal or intraocular angiomata, or the neurofibromata found in other cases, the same cause affects the mesoblastic tissues of the eye; in some cases it occurs in such

a way as to produce buphthalmos, in some, other congenital anomalies, and in other cases it gives rise to invisible structural changes which predispose to the occurrence of glaucoma in later life.

The point of practical importance which emerges from a consideration of these cases, and to which attention has been directed by several authors, is that the presence of a cutaneous nevus, with or without buphthalmos or glaucoma, may give a valuable clue to the nature of a coexistent intracranial lesion. One illustration and sixty-four references accompany the contribution.

D. F. Harbridge.

Goldfeder, A. E. **On Zirm's operation for glaucoma.** Arch. Oftalmologii (Russian), 1930, v. 7, pt. 4-5, pp. 520-529.

Goldfeder performed Zirm's operation in ten cases of glaucoma as follows: three cases of chronic inflammatory; three cases of absolute; two cases of secondary; one case of acute and one case of hemorrhagic glaucoma. The combined iridectomy and extensive anterior sclerotomy with a scalpel incision as recommended by Zirm, proved to be a safe and efficient procedure on this material. The period of observation did not exceed six months in any of the cases reported. *M. Beigelman.*

Haden, Henry C. **Some observations in regard to glaucoma simplex.** Arch. of Ophth., 1930, v. 4, Sept., pp. 326-331.

The author makes a practice of examining with the tonometer all cases calling upon him in consultation; the exceptions are young children and patients with certain inflammatory conditions. He believes that increased tension may be present for a long time without loss of direct vision, gross changes in the fields, glaucomatous cupping of the optic disc or other classic symptoms. He found no difference in tension due to age. The average was well below 25 mm. as measured by Schiøtz tonometer.

Many factors formerly held in suspicion have been shown to have no positive relation to glaucoma. Among these may be noted the size of the cornea, the eye, or the pupil, the physiological cup or the state of refraction, high or low blood pressure and so on. Increase in the size of the lens may be a contributing factor in the presence of other complications, but not of itself.

The author has never seen a glaucomatous cup disappear following relief from tension. Cupping of the nerve is a secondary effect that can only occur after destruction of part of the substance of the optic nerve. It is doubtful whether injury to the optic nerve results from pressure against the scleral spur. In the opinion of the author it is due rather to compression of the blood vessels or other mechanism.

It is probable that focal infection plays a definite part. The usual ones must be considered; nose, teeth, sinuses, prostate, tonsils and intestines. Occasionally, also, disturbances of the endocrine glands may be responsible.

Among all tests for glaucoma the most practical and probably the most reliable in the early stages is the use of the tonometer. The minimum light sense test of Derby is undoubtedly of great value, but under ordinary circumstances it has not as yet been made practicable. *M. H. Post.*

Muselevitch, A. L. **On cholesterin contents in the blood of glaucoma patients.** Arch. Oftalmologii, (Russian), 1930, v. 7, pt. 4-5, pp. 526-534.

In 1927 Salvati (Annales d'Oculistique, January, 1926) reported a marked hypercholesterinemia found in the blood of glaucoma patients. He also claimed that by feeding dogs with cholesterin he was able to produce experimental glaucoma. A similar investigation carried out by Muselevitch did not confirm Salvati's findings. In forty-one glaucoma patients the cholesterin contents in the blood, determined by the calorimetric method of Engelgardt and Smirnova, corresponded to the amount of blood cholesterin in nonglaucomatous persons. *M. Beigelman.*

Niyazi Ismet and Vefik, Husnu. **An interesting observation in a gouty patient** (Glaucoma). Türk Oftal. Gaz., 1929, v. 1, July, p. 179.

Vefik reports the case of a man aged fifty-five years who had severe gout with tophi and crises. After six years the vision of the left eye was nil, and that of the right counting fingers at one meter. The ocular crises resembled attacks of acute congestive glaucoma. Peculiarly, the vision improved upon lying down, but upon sitting erect vision became worse and pain increased. During an attack, small white precipitates about three millimeters in thickness could be seen in the bottom of the anterior chamber; they were freely movable. After a few days all subjective and objective symptoms would disappear. The precipitates gave a positive murexide reaction, and were entirely analogous to tophi present elsewhere in the body. The urine was loaded with uric acid and urates. An iridectomy and general treatment with atophan were followed by marked improvement with visual acuity of 1/12. Examination of the enucleated left eye showed changes characteristic of glaucomatous degeneration.

George H. Stine.

Spratt, C. N. **Trephining for buphthalmos: report of a case observed for seventeen years.** Arch. of Ophth., 1930, v. 4, Sept., pp. 338-341.

Among 38,000 cases seen in the author's practice, two patients with buphthalmos have had trephining operations on both eyes. One was observed for seventeen years. On the left eye a 2.5 mm. trephine was used; on the right eye a 2 mm. The right eye was again operated on for recurrence of tension with a 2 mm. trephine in March, 1914. The left eye atrophied following a hemorrhage at the time of operation. On April 1, 1930, the right eye with minus 16.00 sphere had vision of 10/200. The field was ten degrees in diameter. The tension was 36 mm. The cupping was two diopters.

In the second case, trephining gave no relief from symptoms. The right eye was removed shortly because of pain and the left was removed following an injury some time later.

The author believes that a small trephine should be used and the operation should be repeated if necessary. It should be performed before the eye becomes badly stretched, or an optic atrophy has begun. The literature, as reviewed by the author, agrees in general that trephining is the operation of choice, and that it must be performed early or it proves of little use.

M. H. Post.

Tsykulenko, K. I. **On correlation of glaucoma, sex, and age.** Russkii Opht. Jour., 1930, July, pp. 17-23.

Of the 60,977 patients treated in the Eye Hospital of Odessa from 1904 to 1928, 1.54 percent were affected with glaucoma. The frequency of glaucoma among women was 2.04 percent and among men 1.06 percent. Although not bound by age limits, the incidence of glaucoma among eye patients was prevalent between forty and seventy years. *M. Beigelman.*

9. CRYSTALLINE LENS

Argañaraz, Raul. **Cataract extraction.** Arch. de Oft. de Buenos Aires, 1930, v. 5, July-Aug., p. 261.

The author has abandoned preliminary washing with soap, using instead Dakin's solution, consisting of mercuric iodide 45 parts, potassium iodide 33 parts. Four grams of this mixture is dissolved in 460 c.c. acetone, and used on cotton to wash the skin. The conjunctival sacs are flushed with 100 to 200 c.c. of physiological saline solution.

Akinesia is established by 1 to 2 c.c. of 2 to 5 percent novocain injected in front of the tragus, and into the substance of the parotid. Lid injections are likely to cause a troublesome local edema. One c.c. of the same solution is also injected intraorbitally, and the operation is begun immediately.

A silk suture passed through the tendon of the superior rectus both holds

the eye downward and retracts the upper lid. The lower is held down by the assistant's thumb. After a corneal section with conjunctival flap, luxation ot the lens is done with either the Elschnig or the Bazterra forceps, aided by slight pressure with a strabismus hook. A small iridectomy completes the operation. A silk suture is passed through the skin of the upper lid near the lashes and fastened to the cheek with adhesive plaster, to insure closure.

A. G. Wilde.

Duverger and Velter. **Considerations concerning biomicroscopy of the crystalline lens.** Arch. d'Opht., v. 47, 1930, July, p. 417.

This article is a review of the classification of lens opacities as seen with the slit-lamp and corneal miscroscope. Four excellent colored plates accompany the article. *M. F. Weymann.*

Friedenwald, J. S. **The permeability of the lens capsule to water, dextrose and other sugars.** Arch. of Ophth., 1930, v. 4, Sept., pp. 350-360.

In a previous paper, quantitative studies concerning the permeability of the lens capsule to various colloid and crystalloid aniline dyes was reported, with qualitative studies of various other organic and inorganic substances. The present paper deals with the quantitative study regarding the permeability of the lens capsule to the important substances, water and dextrose. Carefully washed lens capsules from freshly enucleated eyes were used in the experiments.

The capsule was tied over the end of a tube, which was filled with the solution to be tested and immersed in a solution of normal saline. The osmotic pressure was estimated by comparing the rate of flow of water through the membrane under the influence of the unknown osmotic pressure, with similar rates produced by hydrostatic pressure. This was found comparable up to a hydrostatic pressure of about 40 cm., and in the actual experiments no pressure of over 20 cm. was used. The data are reported as obtained after one-half hour of diffusion, which avoids errors due to concentration of sugar on both sides of the membrane.

It was further found that the rates of diffusion of water and dextrose, within the limits of error of the experiment, were directly proportional to the concentration of dextrose used. It was found by the study of cows' and calves' lens capsules that permeability decreased with age, and also with the increasing molecular size of the various sugars studied.

The effective osmotic pressures of the several sugars are approximately equal, although their actual pressure varied considerably. This, however, is dependent upon the permeability of the membrane to the various sugars considered, while the effective osmotic pressure is due to the relative speeds of the various sugar molecules through the membrane and in water. The percentage of effective pressure, however, is a constant characteristic of each sugar and independent of the total concentration of sugar solutions used.

No changes in permeability attributable to an isoelectric point could be determined. Proteins, even in small quantities in the solutions, reduced the permeability of the membranes markedly for dextrose and slightly for water. Slight effect was found, where sodium chloride was introduced, as regards dextrose, and unappreciable as regards water. Sodium cyanide produced still less effect than calcium chloride.

Rabbits' lens were studied to determine the effect of age on permeability. A steady and continuous decrease in permeability was found to occur with advancing age. The relative decrease of all three sugars used was approximately the same, showing that the size of the pores of the membrane, even in aged rabbits, remains considerably larger than the size of the largest sugar molecules used in the test.

The author summarizes his findings under three headings: (1) The permeability of the capsules from adults of all

three species, used in the experiments, is of the same order of magnitude. (2) The permeability of the capsule decreases with age. (3) The permeability of the capsule decreases with increasing molecular weight of the diffusing substances. *M. H. Post.*

Gradle, Harry S. **The age of patients operated on for senile cataract.** Jour. Amer. Med. Assoc., 1930, v. 95, Sept. 13, p. 774.

The age curves of 4,730 patients operated on for senile cataract by twelve different operators in various parts of the world showed surprising unanimity. Practically forty percent of all senile cataract operations are performed between the age of sixty and seventy years, with an average of sixty-five years. The nationality of the patients and the type of operation, whether intracapsular or extracapsular, seems to play but little rôle in the age curve, although a noticeable difference occurs in comparing the ages of Caucasian and Indian patients. (Discussion.) *George H. Stine.*

Junès, E. **Vertical keratotomy with scissors in the operation for senile cataract.** Ann. d'Ocul., 1930, v. 167, Sept., pp. 732-744.

The author favors an incision with a keratome in the midline above, at the limbus, merely large enough to permit the introduction of scissor blades with which the section is completed. The advantages claimed are: first, the simplicity of the procedure; and second, the resulting wound, which is directly across the cornea, the cornea being cut at exactly right angles.

Lawrence T. Post.

Leech, V. M. **Persistent posterior fibrovascular sheath of the lens caused by fetal iritis.** Arch. of Ophth., 1930, v. 4, Sept., pp. 332-337.

When the posterior portion of the fibrovascular sheath of the lens persists after birth, it is known as persistent posterior fibrovascular sheath. The authors present a case for two reasons: first, faulty diagnosis; second, the presence of definite inflammatory changes in the adjacent structures, associated with congenital anomalies found.

A girl, four months old, appeared to have been blind in the right eye from birth. There was a gray film in the pupil. The eye seemed smaller than the left. The cornea was clear and the anterior chamber was shallow. The iris was discolored, either atrophied or undeveloped. Three vessels were seen in it, running radially to the margin. There was a dense gray membrane in the pupil and no red reflex. There was no reaction to light. The pupil did not dilate to atropine. Enucleation was decided on.

There was an increase of fixed corpuscles in the posterior layers of the anterior portion of the cornea. The iris was adherent posteriorly to the lens. There was a well formed pupillary membrane of fibrous tissue and blood vessels. It was attached to the small circle of the iris, pulling the stroma forward in advance of the pigment layer. The lens was triangular with the apex forward and moderately shrunken, the capsule was wrinkled, and there was a well marked capsular cataract anteriorly, with a cortical cataract at the equator.

There was a fairly well developed mass of fibrovascular tissue outside the lens at the posterior pole. The ciliary processes were drawn over and adherent to this mass, pulling the retina forward with them. Parts of a persistent hyaloid artery were also seen.

The evidences of inflammation consisted in: first, cells in the anterior chamber; second, fibrosis of the iris with increased cellular infiltration; third, capsular cataract and shrinking of the lens; fourth, retention of the pupillary membrane and posterior fibrovascular sheath with a hyaloid artery. These findings appeared to be definite signs of inflammation as the causative factor in the persistence of the fetal membranes. *M. H. Post.*

Peretz, H. **New study of preoperative complications of eyes afflicted with**

cataract in Egypt. General considerations and practical indications. Ann. d'Ocul., 1930, v. 167, Sept., pp. 713-720.

Trachoma being so prevalent, a careful search for all granules must be made, and they must then be destroyed. Where a previous radical operation such as tarsectomy has been performed cataract extraction is handicapped. For the frequent lacrimal complications nothing short of extirpation of the sac is sufficient. Many conjunctivæ are badly scarred and shortened. Many corneæ are scarred.

Egypt seems to be a most fertile field for glaucoma simplex, so that this disease must always be considered as a possible complication. Atropin must be used with great care. Extraction with iridectomy is best. Next to glaucoma, high myopia and arteriosclerosis of the fundus vessels are the most serious ocular dangers. Myopia is very common.

A final warning is against operating from June to the end of September, because of the extreme heat.

Lawrence T. Post.

Veil, P., and Favory, A. **Hereditary and familial cataract.** Arch. d'Opht., 1930, v. 47, Oct., p. 666.

A brief discussion of the literature upon this subject is followed by the report of a family in which the inheritance of cataract is traced through five generations. The cataracts were of a disciform type located in the posterior nucleocortical region. They were first noticed in most of the individuals in early adult life. A detailed description of the biomicroscopic appearance of the cataracts is given. (Two illustrations).

M. F. Weymann.

10. RETINA AND VITREOUS

Bonvech, E. S. **Pseudo-albuminuric neuroretinitis and its etiology.** Arch. Oftalmologii (Russian), 1930, v. 7, pt. 4-5, pp. 435-446.

A typical albuminuric neuroretinitis with the formation of a paramacular star was observed in a case of brain tumor without general hypertension. The author's contention is that the albuminuric features of a neuroretinitis are not caused by renal lesions, but that both the retinal and the kidney affections in these cases are simultaneous manifestations of some chronic infection or intoxication. Such chronic infection coexisted with a brain tumor in the author's case and was responsible for the development of the neuroretinitis.

M. Beigelman.

Dejean, C. **Persistence of the hyaloid artery and of the canal of Cloquet.** Arch. d'Opht., 1930, v. 47, July, p. 459.

In the case reported the hyaloid artery could be traced from the lens to the disc. With the slit-lamp it appeared to be surrounded by a white disc. This canal encloses the primitive vitreous.

M. F. Weymann.

Fritz. **Measurements of the rigidity of the central artery of the retina and its clinical importance.** Arch. d'Opht., 1930, v. 47, July, p. 476.

The amount of pressure which it is necessary to apply to the globe to completely compress the central artery after the first appearance of arterial pulsation is a measure of its rigidity. With the Baillairt dynamometer this is never greater than ten grams in normal individuals. The greatest rigidity was found in marked hypertension and in a case of thrombosis of the central artery. Practically all cases of circulatory disease of the eye showed increased rigidity of the artery.

M. F. Weymann.

Gonin, J. **Local treatment of retinal detachment.** (In memory of Professor M. Dufour, President of the Tenth International Congress of Ophthalmology). Rev. Gén d'Opht., 1929, v. 43, Oct., p. 381.

In opening the International Congress at Lucerne in 1904, Dufour expressed the hope that at some future congress some one would introduce a direct means of reattaching the retina, and blessed him in advance. His pupil

Gonin, the writer, had the great satisfaction of fulfilling the hope at the Thirteenth Congress in 1929.

Résumé: (a) In all cases of recent detachment in which the closing of the tear was obtained with certainty the cure has been immediate and complete, without any other treatment. (b) In all cases in which the detachment persisted, searching exploration showed that the tear had not been closed or that another previously unrecognized tear existed. (c) In cases of recurrence, an explanation was found in the formation of a new tear.

Prompt treatment is most important. Delay greatly lessens the chances of good results. Where the duration was less than three weeks complete cures were obtained in three of five cases; with a duration of three weeks to three months, complete cures occurred in two of five cases, where the duration exceeded three months a complete cure was obtained in one of five cases.

The discovery of a tear may require much patience, but is accomplished nine out of ten times. To localize the tear and reach it by a perforating cauterization is usually difficult and sometimes impossible. The risks are comparatively insignificant. The operation does not reach the cause of the detachment nor does it insure against a recurrence; the same criticism applies to the operative treatment of glaucoma which has proven beneficial in a high degree, although the etiology of glaucoma remains unknown. *J. B. Thomas.*

Knapp, P. **The Gonin treatment of retinal detachment.** Schweizer med. Woch., 1930, v. 60, Sept. 27, p. 909.

As a guide to the meridian of the retinal tear during the operation, a linear scratch of the corneal epithelium stained with fluorescin is used along the located meridian. The preliminary puncture of the sclera with the cataract knife to give exit to the subretinal fluid is used only in large detachments. In the flat detachments the ignipuncture is made directly through the intact sclera. This saves vitreous loss.

The thermocautery is preferred because it leaves a larger and denser scar and promotes reattachment. The only advantage of the electrocautery, which has a lower temperature and makes a smaller puncture, is that it permits of more than one puncture at one sitting. The short application of the thermocautery, which requires only one to three seconds, is, for its psychic effect on the patient, superior to the long applications (ten seconds to twenty seconds) required by the electrocautery. Small hemorrhages following puncture are of no importance, but large ones are to be avoided.

Three cases are reported. One demonstrates the importance of securing a large solid scar. Another proves that the subsequent shrinkage of the scar may exert sufficient traction on the tear to close it even if it has been missed by the puncture. The third case exhibited the unusual complication of a typical choked disc with hemorrhages following the ignipuncture; this complication, however, slowly subsided.

M. Davidson.

Kotlarevskaia, S. Z. **On peculiar fundus changes in Paget's disease** (osteitis s. osteodystrophia deformans). Arch. Oftalmologii (Russian), 1930, v. 7, pt. 4-5, pp. 511-515.

The author reports the following macular changes found in a case of Paget's disease: chorioretinal atrophy with occasional pigmentation; hemorrhagic spots and stripes resembling striæ angioides. The impairment of calcium metabolism, which is the probable basis of Paget's disease, may account for a defective state of the retinal blood vessels with resulting hemorrhages.

M. Beigelman.

Lagrange, H. **Clinical pictures and etiology of acute night-blindness.** Ann. d'Ocul., 1930, v. 167, Aug., pp. 652-677.

This is a general discussion of the subject. Four cases are briefly recorded. The frequent association with xerophthalmia and with deficiency of vitamin A is stressed. The large per-

centage of cases in springtime may have a relationship with this. Another point is the occasional occurrence in diseases of the liver. The ancients applied liver extract to the eyes for this trouble. Sections showed collections of pigment about the rods, similar to the appearance of sections from an experimental animal whose eyes are light adapted. The night-blindness in the course of icterus is perfectly explicable by the direct action of the elements which compose the bile on the retinal epithelium. *Lawrence T. Post.*

Lagrange, Henri. **The lesser night-blindnesses.** Ann. d'Ocul., 1930, v. 167, Sept., pp. 744-761.

This term is applied to those cases which do not follow the usual symptomatology and in which the threshold of light sensation is not raised. There were many cases of this type seen during the war. These might be divided into two types, those which were due to an avitaminosis, and those which were not. Many possible causes are discussed, some of them being ametropia, monocular amblyopia, pupillary changes, alterations in the lens, dazzling of the retina, and psychoneurosis.
Lawrence T. Post.

Landegger, George. **Spielmeyer-Stock type of amaurotic family idiocy.** Zeit. f. Augenh., 1930, Sept., v. 72, p. 179.

This type begins later than the Tay-Sachs type, namely, at the time of the second dentition, and after five or six years ends in death, not infrequently with epileptiform convulsions. This type is not limited to the Jewish race. The amaurosis results from a retinal atrophy and secondary optic nerve atrophy, often resembling a retinitis pigmentosa. Anatomically one finds a ubiquitous degeneration of the ganglion cells of the entire central nervous system. In the retina there is a widespread degeneration of the rods and cones.
F. H. Haessler.

Majewski, K. W. **An attempt to mark ophthalmoscopic lesions diasclerally.** Arch. d'Opht., 1930, v. 47, July, p. 440.

In order to mark the tears in the retina for operation according to Gonin, the lesion is located with the ophthalmoscope in the usual manner. The eye is cocainized and an assistant passes a transilluminator with a pinpoint opening over the region of the tear. When the point of light, as seen through the sclera by the observer, corresponds to the site of the tear the assistant is ordered to mark the place. The tear is thus accurately localized. In like manner other lesions anterior to the equator may be definitely localized.
M. F. Weymann.

Niyazi, Ismet, and Vefik, Husnu. **Two cases of neuroretinitis due to dental infection.** Türk Oftal. Gaz., 1929, v. 1, Oct., p. 257.

The first case reported was one of circumscribed retinitis in the lower fundus of the left eye, which was ascribed to a toxemia of pregnancy. However, later examination showed keratitis punctata which prompted search for foci of infection. An infected stump of a left first molar was found, the removal of which was followed by marked improvement within three days, and full recovery of visual acuity and visual fields in ten days. The second case showed neuroretinitis with thrombosis of the inferior branch of the central vein in the left eye. Radiography revealed all teeth filled and a cyst of the upper left canine. The patient consented to extraction of the canine, after which a marked amelioration of the eye condition was noted; central vision recovered to 0.5, and the superior field was restored.

The authors are of the opinion that ocular lesions due to dental infection are situated always on the side of the dental lesion. In their cases, and those found in the literature, the retinal lesions always occupied the lower fundus. This coincidence suggests the probability of a direct relation between the dental veins and the central vein of the retina. Dental infection is com-

mon, but ocular lesions due to this cause are rarely mentioned. X-ray examination is indicated in such cases.

George H. Stine.

Pesme, Paul. **Two cases of detachment of the retina in the new-born.** Arch. d'Opht., 1930, v. 47, July, p. 464.

In the first case a blind eye was removed from an eight months old child because of the clinical presence of a tumor resembling glioma. The father was tuberculous and the child had had meningitis at the age of six months. The enucleated eye showed a detachment of the retina with a hemorrhagic subretinal exudate. The second child, also eight months old, had a bilateral detachment of the retina. Fifteen days after examination this infant died of meningitis. There was a history of tuberculosis in the family. It was considered likely that the retinal detachments in both cases were related to tuberculous infections.

M. F. Weymann.

Stocker, F. **Changes in the retinal vessels and so-called albuminuric retinitis in relation to general vascular changes, particularly to hypertension.** Schweizer med. Woch., 1930, v. 60, Oct. 4, p. 945.

Of the three factors in hypertension, increased heart action, increased viscosity of the blood, and increased resistance in the peripheral vessels, the last is the most important. The so-called albuminuric retinitis is due to hypertension rather than to the nephritis. Nephritis is often absent; even when present it must be regarded, in the light of the latest literature on the subject, secondary to the hypertension. Albuminuric retinitis is the result of a high-grade retinal ischemia. Observation shows the prognosis quo ad vitam of albuminuric retinitis not so grave as it was formerly thought. It is gravest in the presence of acute nephritis. Retinal vessel changes due to hypertension must be distinguished from those due to arteriosclerosis. Pure hypertension phenomena are: narrowing of lumen, indentations of veins without changes in the vessel walls, and an increase of the flitting, soft and brilliant reflexes. *M. Davidson.*

Van Lint. **Scleroretinal thermocauterization in detachment of the retina.** Arch. d'Opht., 1930, v. 47, Sept., p. 597.

Van Lint considers that Gonin lays too much a stress upon the importance of sealing the rent in the retina with the thermocautery as the primary factor in the cure in detachment of the retina. In his opinion the scleroretinal adhesions produced are of primary importance, although he concurs with Gonin in believing that if these adhesions can be produced in the region of the tear then the outlook is more favorable. Exact localization of the tear seems to him unnecessary if one will introduce the cautery in its vicinity. This article seems to be an expression of the writer's personal opinion only, without the introduction of any definite clinical data.

M. F. Weymann.

11. OPTIC NERVE AND TOXIC AMBLYOPIAS

Doggart, J. H. **A case of crater-like hole in the optic disc.** Brit. Jour. Ophth., 1930, v. 14, Oct., p. 517.

This observation was in a female, aged thirty-one years, with a vision of 6/9. Along the lower border of the disc there was a large crescent which showed heaped-up pigment. An oval, grayish-blue hole was situated in the infero temporal quadrant of the optic disc, with its long axis parallel with the long axis of the disc. Its depth was 9 D. There was no blood vessel on the floor.

The field defect mapped in the accompanying charts was not attributable to the hole but rather to the crescent. Forty cases, two-thirds in women, have been reported since Wieth, in 1882, first described the condition. Several examples with more than one hole have been reported. (One illustration, two charts.) *D. F. Harbridge.*

Refat, Ahmet. **Optic atrophy caused by frontal lobe tumor.** Türk Oftal. Gaz., 1930, v. 1, Jan., p. 337.

The author presents a fully detailed report of lymphangiosarcoma of the external surface of the right frontal lobe, causing pressure and extensive destruction of the olfactory nerves. The optic chiasm and tracts were adherent to the floor of the dilated third ventricle. The roof of the right orbit was thinned to the point of semitransparency. Both optic nerves showed primary optic atrophy. Both eyes were totally blind.

George H. Stine.

12. VISUAL TRACTS AND CENTERS

Coleman, C. C. **Brain abscess; a review of twenty-eight cases with comment on the ophthalmologic observations.** Jour. Amer. Med. Assoc., 1930, v. 95, Aug. 23, p. 568.

A series of twenty-eight cases of cerebral and cerebellar abscess is analyzed with reference to the incidence of choked disc, field defects, and paralysis of the extraocular muscles. Nerve-head changes were found in sixteen of the cases. There appeared to be no definite relationship between the size of the abscess and the degree of choked disc. Satisfactory field studies were made in only nine cases. The field changes were as follows: concentric contraction in two cases (frontal lobe); normal in eleven (frontal, parietal and cerebellar cases); and homonymous hemianopsia in two cases (temporal lobe). The ocular muscle palsies were of little importance in the series. In one comatose patient with frontal lobe abscess, a dilated and fixed pupil was of considerable localizing value.

Two tables are appended; one summarizes the ophthalmic observations, and the other the operative results. (Discussion.) *George H. Stine.*

Jusefowa, F. I., Czerny, L. I., and Heinismann, J. I. **As to roentgen therapy of tumors of the hypophyseal region.** Klin. M. f. Augenh., 1930, v. 85, Sept., pp. 344-374 (24 illustrations and 4 tables).

The authors report their ophthalmological, neurological, and roentgenological observations of 70 cases. Fifty-two patients (twenty-four men and twenty-eight women of the ages from under twenty to forty years) were clinically and roentgenologically studied. They were divided into three groups: tumors with acromegaly, with adiposogenital dystrophy, and with ophthalmic types, some typical cases being described in detail.

The conclusions were: A careful examination of the visual field renders the early diagnosis of tumors of the hypophyseal region possible. Characteristic changes of the visual field for colors may coexist with normal field for white. Of equal importance are absolute or relative scotomas, especially if combined with the blind spot. The typical aspect of bitemporal hemianopsia may be obscured; temporal hemianopsia of one eye and blindness of the other are frequent; while concentric contraction and homonymous hemianopsia are rare. Simple atrophy of the optic nerve from secondary degeneration is the most frequent ophthalmoscopic alteration. Choked disc is much more rare. In progressive intracranial pressure it may lead to simple atrophy. Asymmetry in the impairment of vision of both eyes was often observed. Vision may rapidly fail in one eye and remain normal in the other for quite a time. Failure of sight and pallor of disc do not go parallel.

Deep roentgen therapy gives good results and is the most reliable remedy. The best results are obtained in tumors with acromegaly and adiposogenital dystrophy, while the ophthalmic forms react less favorably. In high intracranial pressure, the roentgen therapy must be preceded by preventive decompression. *C. Zimmermann.*

Kenel, C. **Hemorrhage of left cerebral ventricle with partial homonymous hemianopsia and a fatal recurrence ten years later.** Rev. Gén. d'Opht., 1929, v. 43, Sept., p. 348.

The patient had had two apoplectic strokes ten years apart. The first left

as the only permanent symptom a partial homonymous hemianopsia. The second was fatal.

A girl, nineteen years old, had sudden head pain and then coma. Eighteen days later she began to talk, but with paraphasia. She had slight paresis of the right arm and leg, and total right homonymous hemianopsia. Diagnosis was hemorrhage of the left cerebral ventricle in the region of the internal capsule, possibly from tumor or ruptured aneurism.

The patient recovered, married and bore children. After ten years the visual defect was reduced to hemianopsia of the right inferior quadrants. Hysteria, tuberculous meningitis and intracranial tumor were excluded as probable causes of the attack; rupture of an aneurism or encephalitis lethargica were considered. The eye symptoms were decisive and that made the latter diagnosis improbable.

Ten years later a similar attack was followed by death in two hours. Autopsy revealed a large fresh hemorrhage in the left lateral ventricle from an aneurism of an artery of the choroid plexus. An old clot pointed out the location of the previous hemorrhage.

J. B. Thomas.

Sheldon, W. D., and Lillie, W. I. **The importance of visual fields as an aid in the localization of brain tumors.** Jour. Amer. Med. Assoc., 1930, v. 94, March 8, p. 677.

The authors point out that the visual fields may furnish the only signs of localizing value, especially in chiasmal and basal frontal tumors. Seven cases are reported. Nine figures, with reproduction of visual fields, are given. (Discussion.) *George H. Stine.*

13. EYEBALL AND ORBIT

Seka, W. A. **Pseudotumor of the orbit.** Klin. M. f. Augenh. 1930, v. 85, Sept., pp. 626-627.

A man aged twenty years presented right exophthalmos of from 7 to 8 mm., displacement of the eyeball down and outward, upward movement and adduction impossible, almost white disc and very thin vessels, and concentric contraction of the visual field. After antisyphilitic treatment for six weeks without results, sarcoma was diagnosed and the tumor extirpated by Krönlein's method, combined with resection of the optic nerve and the internal rectus. The anatomical examination revealed a decidedly inflammatory process with fibrillar necrosis, and thickened, vascular walls, partly obliterated. Most probably it was a luetic pseudotumor, and a longer period of waiting had perhaps been indicated. *C. Zimmermann.*

Terrien, F., Sainton, and Veil, P. **Progressive exophthalmos due to a new growth in the frontal lobe.** Arch. d'Opht., 1930, v. 47, July, p. 434.

A man sixty-four years of age had a marked exophthalmos of the right eye which began thirty-eight years before, and progressively increased. There was a protrusion in the frontal region with a gap in the frontal bone about the size of a quarter. Exploratory puncture showed no fluid. The fields showed a right homonymous hemianopsia. A diagnosis of tumor at the right frontal lobe was made, but no operation was done. *M. F. Weymann.*

14. EYELIDS AND LACRIMAL APPARATUS

Caillaud, M. **Concretion in the lacrimal canal.** Ann. d'Ocul., 1930, v. 167, Aug., pp. 677-678.

One case is cited of streptothrix infection. *Lawrence T. Post.*

Friede, R. **Treatment of vaccinola of the eyelids.** Klin. M. f. Augenh. 1930, v. 85, Sept., pp. 427-430.

In two cases of vaccinola blepharitis with intense swelling of the lids and face Friede had excellent results within three days by the application of pledgets of gauze or cotton, soaked in thirty percent argyrol and 1 to 1,000 rivanol. The pledgets were placed on the intermarginal borders between the lids and were changed every one or two hours.

C. Zimmermann.

Muzaffer, Ibrahim. **A case of fibrous tuberculosis of the lids.** Türk Oftal. Gaz., 1930, v. 1, April, p. 393.

The author reports a case of fibrous tuberculosis of the lids, and reviews the two other cases reported by Rollet and Kraus. In Ibrahim's patient the condition began as a small nodule in the upper lid six years previously, subsequently involving the lower lid and cheek. The lids and cheek were quite swollen, with a doughy consistency. Two small firm nodules about the size of an almond were palpable in the subcutaneous tissues of the lids; the skin was normal. A similar mass was present in the upper lid of the left eye. The tumors in the right cheek were somewhat larger and freely movable. Other than plaques of xanthelasma on the upper lids and small pigmented spots on the back from the interscapular region to the lumbar region, which did not have the characteristics of the hepatic spots of Recklinghausen's disease, no abnormality was found. X-ray examination showed evidence of pulmonary tuberculosis. Histologically, the tumor removed at biopsy consisted of dense fibrous tissue inclosing islands of lymphocytes, giant cells, and epithelioid cells characteristic of tuberculosis. A course of tuberculin in small doses gave a very satisfactory result.

George H. Stine.

15. TUMORS

Balacco, F. **Endothelial sarcoma of the choroid.** Ann. di Ottal., 1930, v. 58, July, p. 569.

From three cases observed the author draws the following conclusions. There exists a pure form of endothelial sarcoma as well as a perithelial type. When both are encountered in the same tumor there have evidently been different points of origin. The interfascicular, endothelial neoplasms originate in the endothelial cells of the lymphatic spaces of the choroidal connective tissue; the perithelioma originates in the endothelium of the choroidal blood vessels. The pigment accumulates at the periphery of the tumor so that the least pigmented part is the youngest. The pigment in this zone comes from the sarcoma cells and is never of hematic origin. The retrogressive changes met with are due to the rapid growth of the tissue with scarcity of vascularization. The glaucomatous tension is due to the obstructed flow of blood in the choroidal veins and consequent accumulation of serum, with detachment of the retina. The adherence of the retina to the neoplasm is due to inflammation caused by the absorption of toxic products. Where the new growth is in process of disorganization as a result of the phlogistic process, choroidal ossification may occur, a rare occurrence in choroidal sarcoma. (Bibliography, with six plates.)

Park Lewis.

Cohen, Martin. **Unrecognized retinoblastoma and pseudoretinoblastoma.** Arch. of Ophth., 1930, v. 4, Sept., pp. 368-373.

Two cases are reported: the first was a case of retinoblastoma, generally known as glioma retinæ, and the second was a case of pseudoretinoblastoma. Neither case was diagnosed correctly previous to enucleation, though both were seen by a number of experienced ophthalmologists.

Retinoblastoma is rare, especially in the colored race. The patient reported was a colored boy two years old. The first disturbance occurred in the right eye three days after vaccination for small pox. On first examination there was evidence of acute inflammation with hypopyon. The eye was completely blind. Focal illumination of the vitreous was impossible. A diagnosis of metastatic ophthalmia was made.

The child had had none of the illnesses of childhood. On the third day after admission a hemorrhage appeared in the aqueous, and retinoblastoma was suspected. The left fundus was found to be normal. The right eye was enucleated followed the hemorrhage. A necrotic lesion occupying practically the entire vitreous was found. The tumor was typical of retinoblastoma, though no true rosette formation was

recognized. The case illustrates the difficulty of diagnosis and the likelihood of hemorrhage.

The second case was a girl, three years old, brought to the clinic because of a yellowish brown glare seen in the pupil of the right eye. The disc was grayish-white, with a moderate horizontal nystagmus. The eye was otherwise normal. The pupil reacted to light and followed the light in all directions.

The left eye showed a yellowish-brown pupillary reflex, with increased intraocular tension. The iris appeared normal, but did not react to light, either directly or indirectly. The pupil was widely dilated. Focal illumination showed a smooth, nonvascular mass, located directly behind the lens. Transillumination was absent.

The eye was enucleated. A form of pseudoretinoblastoma was found. A mass of dense tissue behind the lens extended backward to the papilla and laterally to the ora serrata. Grossly, the eye suggested a posterior pupillary membrane, but this was not borne out on microscopic examination. The microscopic diagnosis was plastic cyclitis with sequelæ. A source of infection could not be found.

In both cases enucleation was indicated.

The paper is accompanied by six beautiful colored plates which show well the nature of these growths.

M. H. Post.

Cordes, F. C., and Horner, W. D. **Metastatic melanoma of both eyes: report of a case.** Jour. Amer. Med. Assoc., 1930, v. 95, Aug. 30, p. 655.

Metastases to the eyes from melanoma of the skin are rare and have been reported only a few times. In the case here reported a mole had been removed from the left scapular region, and a diagnosis of melanosarcoma had been made. A year later the patient entered the hospital complaining of severe headache, weakness, and dizziness, with falling to the right. A diagnosis was made of metastatic melanoma with cerebral metastases and increased intracranial pressure. The patient died on the fourth day of hospitalization with diffuse pneumonia and cerebral depression. Autopsy showed metastases in the brain, heart, suprarenals, and pituitary body, and sprinkled generally throughout all the organs except the liver and spleen. Both eyes contained metastases in the ciliary body, and in one eye there were small groups of tumor cells in the iris and optic nerve. (Discussion.) *George H. Stine.*

Gourfein-Welt, L. **A case of leucosarcoma of the choroid. Difficulties of diagnosis.** Rev. Gén. d'Opht., 1929, v. 43, Sept., p. 341.

Ten percent of the globes enucleated for glaucoma are affected by unrecognized sarcoma of the choroid.

The author reports a patient seventy-two years old who had a suspected tumor in one eye and complicating vascular disease in both eyes. The eye suspected of tumor was removed under general anesthesia, because of constant intolerable pain from glaucoma. Icterus was observed two days later, which indicated a previously unsuspected involvement of the liver. The patient died a few months later of sarcoma of the liver. *J. B. Thomas.*

Moore, R. F. **Two cases of epithelial implantation cyst of the iris.** Brit. Jour. Ophth., 1930, v. 14, Oct., p. 496.

Two case reports of this unusual condition are given. The first was in a myopic patient whose spectacle lens was broken. A clean linear cut extended through the thickness and across the cornea from four o'clock to ten o'clock. The lens and iris were undamaged. The wound quickly healed. With correction vision equalled 6/6. On the iris opposite the four o'clock position was a small grayish woolly-looking mass, which two weeks later disappeared. The eye quieted down and a myopic correction gave a vision of 6/6. Ten months later the patient noticed a small spherical pearly cyst, and lying across it with its root uppermost was an eyelash.

An incision was made at the corneoscleral junction and the eyelash was removed. An iridectomy, including the cyst, was performed. Sections of the cyst showed it to be lined with a squamous epithelium. Examination of the cilia showed no evidence of its growth. One year and eight months after the original injury a small cyst appeared far back in the angle of the anterior chamber in the coloboma. This was successfully removed. Seven years and eleven months after the accident the eye was quiet with a vision of better than 6/6.

The second case, a woman aged forty-eight years, received a perforating wound from a piece of coal near the limbus at six o'clock. A fragment of coal was removed from the anterior chamber through a keratome incision. Before discharge from the hospital a small woolly spot on the iris was noted. Two and a half months later a pearl-like epithelial cyst was observed and lying across it was a small eyelash. The condition was dealt with in the same manner as in the first case. The pathological diagnosis was an implantation cyst of the iris. (Three illustrations.)

D. F. Harbridge.

Mursin, A. N. **Trephining of the cornea for operations on the iris.** Klin. M. f. Augenh., 1930, v. 85, Sept., pp. 416-422. (5 ill.)

In a case of melanosarcoma of the iris which almost touched the cornea at the nine o'clock position, a triangular conjunctival flap 4 mm. from the limbus with its apex to the temporal side was formed. Then with Hippel's trephine of 4 mm. diameter (one-half on the cornea and half on the sclera) the limbus was trephined, leaving the outer third of the flap in connection with the sclera. The whole tumor prolapsed through the opening and was removed, and the corneal flap replaced. At first there was incomplete closure of the anterior chamber and the flap became opaque, but after about two months it had healed in firmly, and the anterior chamber was of normal depth, vision 0.3. The method is useful if iridectomy is technically too difficult.

C. Zimmermann.

Musial, A. **A case of glioma of the optic nerve.** Zeit. f. Augenh., 1930, Sept., v. 72, p. 189.

The author describes his clinical and anatomical observations on a glioma involving the optic nerve of a fifteen-year-old female. *F. H. Haessler.*

Niyazi, Ismet. **Cavernous angioma of the orbit.** Türk Oftal. Gaz., 1929, v. 1, July, p. 185.

This case had the typical signs of orbital tumor with vascularization of the upper lid. The exophthalmos could be diminished by pressure on the globe. No thrill, murmur, or pulsation was present. The tumor was successfully removed by Krönlein's method, and found to be encapsulated and on a pedicle. *George H. Stine.*

Puscariu, E., and Lazaresco, E. **Two observations of xeroderma pigmentosum with epibulbar epitheliomata.** Ann. d'Ocul., 1930, v. 167, Aug., pp. 633-642.

Two cases of this affection are reported in a brother and sister. In each case tumors began at about three years of age, were multiple and in one showed recurrences. One situation common to each was the bulbar conjunctiva. Microscopically the tissue resembled epithelioma. Six illustrations accompany the contribution. *Lawrence T. Post.*

Tieri, A. **Retrobulbar tumors: a diagnostic and therapeutic contribution.** Ann. di Ottal., 1930, v. 58, July, p. 547.

The importance of an early and correct diagnosis in these cases is illustrated by four clinical cases. A characteristic feature of these neoplasms is proptosis. The growth may be at any point in the orbit posterior to the equator of the globe. For diagnosis it is essential to ascertain both the amount of the ocular protrusion and its genesis. Distinction must be made as to possible phlogistic conditions such as septic orbital cellulitis and thrombophlebitis,

which are rapid in onset. Some of the tumors found in the orbit are: angioma, fibroma, lipoma, osteoma, and endothelioma, psammoma, cylindroma, myxosarcoma, round-celled and fusiformed-celled sarcoma, metastatic growths and cysts. Points of importance in diagnosis are the direction of the exophthalmos and the limitation of ocular movement; palpation of the orbital cavity, with narcosis if necessary; and explorative puncture or incision. If a bit of the growth can be secured biopsy may be helpful. In doubtful cases, where lues or tuberculosis is suspected, treatment may be carried on for a reasonable time, but not long, for the growth may be malignant. Various operative measures are described.

Park Lewis.

16. INJURIES

Barany, R. **Calcium in ultraviolet ray conjunctivitis.** Schweizer med. Woch., 1930, v. 60, Sept. 27, p. 922.

The oral administration of calcium was found extremely effective in combating a very severe conjunctivitis in the author resulting from an accidental exposure for a long period to ultraviolet radiation of a quartz lamp. There was not only profuse lacrimation and edema of the lids, but there was also involvement of the cornea. One-half hour after the administration of 4.5 grams of Kalzan (lactate of calcium and sodium) the symptoms disappeared entirely. They returned with the same severity six hours later and were similarly controlled in half an hour by 6.0 grams of Kalzan, this time permanently. The author has successfully used calcium to abort colds ever since Januschke's publications on the effect of calcium on inflammation. The effects of calcium ingestion on skin burns due to ultraviolet radiation have not been encouraging, but the subject deserves further study.

M. Davidson.

Fage. **The rôle of traumatism in certain type of iritis.** Arch. d'Opht., 1930, v. 47, August, p. 539.

Three cases of iritis are reported after slight injuries. In one patient syphilis was a factor, and in the other two there were histories of tuberculous infections. Although the underlying cause of an iritis may be a systemic disease, the immediate injury which induces the inflammatory reaction must be considered in industrial cases because the iritis might not have occurred without the injury.

M. F. Weymann.

Reichert. **On the technique of the diascleral magnet operation.** Klin, M. f. Augenh., 1930, v. 85, Sept., pp. 424-425.

Two cases of small pieces of copper located intraocularly are reported in which the exact localization according to Comberg facilitated the extraction. Reichert raises the question whether the diascleral operation of foreign bodies, at least in the anterior portion of the vitreous, may not (after exact localization) be superior to the circuitous and time-consuming manipulation with the giant magnet.

C. Zimmermann.

Rycroft, B. W. **The nonmagnetizable metallic foreign bodies of the cornea, with the report of a case.** Brit. Jour. Ophth., 1930, v. 14, Oct., p. 501.

This is a discussion of the various types of nonmagnetizable metal, such as brass, copper, lead, solder and gold, and the nature of the corneal injury sustained. The condition in which they exist in the cornea, namely single or multiple, determines the method of treatment; removal by spud, anticipation of secondary ulceration, burning them out with the galvanocautery, curettage, suction, epithelial exfoliation or, if tolerated in the cornea, allowed to remain.

A case report follows in which a patient's corneæ were studded with innumerable fine globules of silver solder. Photophobia was an outstanding symptom, boric lavage, atropine and dark glasses were of small value. After two weeks' trial the corneæ were well cocainized and an attempt was made to exfoliate the epithelium with a cotton probe. It was necessary to resort to the use of a discission needle, before all

parts of the corneal epithelium were removed. Few of the foreign bodies came away. Vision was 6/9. (One illustration.) *D. F. Harbridge.*

Safar, Karl. **Eye injury resulting only from the electrodynamic action of lightning.** Zeit. f. Augenh., 1930, v. 72, Aug., p. 1.

A sixteen-year-old girl was struck by lightning and was unconscious for three hours. Both corneæ were involved in a delicate diffuse clouding which consisted of minute, discrete, punctate opacities throughout the stroma, and linear opacities in the deeper layers. The anterior and posterior lens capsules were also delicately clouded and there were subcapsular vacuoles. In the fovea in each eye there was a pigment disturbance and the surrounding retinal tissue was less translucent; in the peripheral part of the retina a finely granular pigmentation was visible. In one eye there was probably a hole in the macula. Five weeks after the injury a hypopyon iritis occurred. At the end of the healing period the vision was 6/36 and 6/18 in the right and left eye, respectively. The author ascribes the changes solely to the electrodynamic action of the lightning, and believes that heat is in no way responsible for them. *F. H. Haessler.*

Strebel, J. **When should the conjunctival flap be used in perforating injuries of the eyeball?** Schweizer med. Woch., 1930, v. 60, Oct. 4, p. 947.

On general surgical principles and in the light of an illustrative case these suggestions are made: (1) In scleral wounds involving the retina, i.e., with vitreous prolapse, the scleral wound in the region of the retinal tear should be cauterized for the double purpose of preventing infection and, in view of Gonin's ideas, of preventing subsequent detachment of the retina. (2) In view of the generally unclean nature of such wounds, the use of the conjunctival flap should be deferred in order to give access to it for disinfection with argyrol and cauterization, and until its healthy condition is determined. A scleral suture is used temporarily if the wound is more than three millimeters long and is gaping; the conjunctival flap may be applied a week later. This procedure is more rational than immediate covering of the wound and should prevent in many cases the development of panophthalmitis, cyclitis, sympathetic ophthalmias, and the need for subsequent enucleation. *M. Davidson.*

Truc, H. and Dejean, C. **A wound and hernia of the ciliary region by a particle of glass, recovery with complete conservation of the eye.** Arch. d'Opht., 1930, v. 47, Oct., p. 676.

A case report of a twenty-one year old man with a wound by a piece of glass in the ciliary region of the right eye was given. The wound was covered with a conjunctival flap without any excision of herniated tissue. Recovery was complete with normal vision. Conservative treatment of such wounds by glass is advised.

M. F. Weymann.

Vogt, Alfred. **Ocular lesions from radiant energy.** Klin. M. f. Augenh., 1930, v. 85, Sept., pp. 321-324 (13 ill. and 2 colored plates).

Vogt gives a compact survey of our present knowledge of ocular lesions from radiant energy, based chiefly on his own experiments and illustrated by case histories. Most important for all lesions by light is the principle: without absorption no lesion. Thus Vogt showed that not only the visible light rays (which penetrate, but do not change, the ocular media) are absorbed by the pigment epithelium, but also the short-waved infrared rays, producing heat. Vogt succeeded in creating severe inflammatory and necrotic alterations of the retina and choroid of the rabbit by short-waved infrared alone without visible light. Hence it seems to be proved that the damage to the macula from looking into the sun consists mainly in a combustion of the pigment epithelium and the adjacent neuroepithelium by the visible and in-

frared light absorbed by the pigment epithelium. Ultraviolet light is, in contrast to visible light, intensely absorbed by the superficial layers of the cornea, glacier burn is caused by the short-waved ultraviolet light on high mountains. Vogt showed that this ultraviolet below 310 millimicra burns corneal epithelium, conjunctiva and skin, whereas waves between 435 and 314 were innocuous even in high intensities. The yellow iron oxide glasses, devised by Fieuzal, and the Umbral glasses of Zeiss are the best protectors against ultraviolet light.

Biologically, two kinds of infrared must be distinguished: (1) The long-waved rays of more than 2,400 millimicra, which do not penetrate the ocular media, but are absorbed by the tears and surface of the cornea, producing sensation of heat and conjunctivitis. (2) The shorter-waved infrared between about 2,400 and 750 millimicra, which penetrate the ocular media and are most intensely absorbed by the lens and the pigment epithelium. Isolated by a special filter the infrared rays produced total cataract in rabbits in three hours. As the glowing glass mass in glass works contains an enormous amount of short-waved infrared (from 800 to 1,800), it follows with great probability that the glass worker's and founder's cataract, also showing the posterior axial cortex as the seat of predilection for the opacity is due to the infrared rays. Green iron suboxide and blue (Cobalt) glasses are recommended for protection of glass workers.

Roentgen rays produce (1) ephemeral lesions, visible from the first to the third days after application, consisting of irritative exudation on capsule and iris, and dust in the aqueous; (2) late injuries appearing after months in the posterior and anterior cortices; these are slowly progressing. In this way they show two principal differences from the infrared cataract.

Radium causes similar changes, demonstrated by a radium cataract in a rabbit and by the result of heat on a human eye, showing vascular necroses at the limbus with secondary extensive blisters and secondary glaucoma.

C. Zimmermann.

17. SYSTEMIC DISEASES AND PARASITES

Benedict, W. L. **Schönlein-Henoch's purpura with intraocular hemorrhage and iritis.** Jour. Amer. Med. Assoc., 1930, v. 95, Nov. 22, p. 1577.

Ocular hemorrhages and iritis with corneal opacification as a complication of Schönlein-Henoch's purpura has not hitherto been reported. The disease is related to a large group of anaphylactoid disorders associated with arthritis, abdominal pain, edema, and cutaneous hemorrhages. In the case reported, which was observed over a period of ten years, there were intraocular hemorrhages with recurrent attacks of iritis. Epistaxis occurred as a vicarious menstruation. The vision of the left eye was lost and the eye was enucleated. The right eye was involved later, but recovered. The irregularity of onset and of symptoms, and the apparent ineffectiveness of treatment are pointed out. (Discussion.) *George H. Stine.*

Bennett, A. E., and Patton, J. M. **Oculogyric crises in postencephalitic states.** Arch. of Ophth., 1930, v. 4, Sept., pp. 361-67.

In early epidemics of encephalitis eye symptoms were very prominent. In the more recent ones Parkinsonian residuals, accompanied by late ocular disturbances, are the rule. Paroxysmal, spasmodic deviations of the eyeballs occurring either upward or laterally have been termed oculogyric crises.

Seven cases were observed by Dr. Harold Gifford and Dr. G. Alexander Young. The symptoms consisted of attacks of deviation, lasting from several minutes to several days. At times they remained fixed, at other times they could be controlled for a moment only. The lids fluttered and blinked and occasionally closed. There were synergistic movements of the head and body at the time of these attacks. The eyes were uncomfortable and emotional dis-

turbances of an anxiety neurosis were the rule. One case showed no signs of paralysis agitans; all others did. No autopsies have been performed.

The lesion is considered to be in the basal ganglia or the striopallidal system, or in the anterior portion of the corpora quadrigemina.

Jelliffe, who has studied this condition extensively, has tried to determine an organic and psychogenic origin for the attacks without reaching any definite conclusions.

Seven case histories are reported, in all of which spasmodic conjugate deviation of the eyeball was present. Blepharospasm and fluttering of the lids were present in most of them. The only therapeutic measures of value consisted in the continuous use of hyoscine or stramonium, which usually give relief. General constitutional treatment was of value in one case. The stramonium relaxed the bradykinetic tendency in one case more strikingly than did the hyoscine. Both drugs are well worth while, because they enable the patient to continue with his regular vocation, which would otherwise be impossible.

M. H. Post.

Dunning, H. S. **Oral infections and their relation to diseases of the eye.** Arch. of Ophth., 1930, v. 4, Sept., pp. 315-321.

It has been recognized for some time that nonvital teeth have a predilection for bacterial growth. Infection occurs in three ways: (1) The intradental route; decay within the tooth involves the pulp, then the pulp canal and finally the apex. (2) The peridental route; the peridental attachment into the alveolus is stripped up and the bacteria gain access to the bone. (3) Through the blood stream. In the author's opinion the first two predominate in frequency.

How can the bones of the jaw be sterilized in order to prevent some systemic disturbance? The first route produces the most serious damage. Streptococcus viridans is the most frequent invader. Practically all pulpless teeth will give a culture of this organism, along with other secondary invaders; consequently, most pulpless teeth should be removed at about fifty years of age. The infected alveolus should not be curetted.

Ocular infection from diseased teeth occurs in three ways: (1) from direct extension through the bone, usually resulting in abscesses of the lower lids, the sinuses, emboli, and even of the frontal lobe, resulting in atrophy of the optic nerves and periostitis. (2) Direct extension along the periosteum of the malar bone into the orbit, resulting in disturbances such as those occurring under the first route. (3) Transference from the tooth to the eye by the blood stream, which appears to be the most frequent and most important route and the one responsible for the most intraocular disturbances. *M. H. Post.*

18. HYGIENE, SOCIOLOGY, EDUCATION AND HISTORY

Coppez, H. **What specifications should apply to a scale of visual acuity.** Arch. d'Opht., 1930, v. 47, July, p. 428.

With the present decimal progression of visual acuity scales the gaps between the acuities expressed by the larger letters are so great that accurate classification of disability after industrial injuries is sometimes difficult. Variation in vision in those individuals with an acuity of 0.01 to 0.04 is difficult to measure accurately with the present scale. It is recommended that a scale arranged in geometric progression be adopted to eliminate these large gaps. Such a scale with fourteen steps between a visual acuity of 0.01 and 1 is quite satisfactory for most accurate work. Some of the larger letters may be omitted where only visual acuities near the normal are to be tested.

M. F. Weymann.

MacCallan, A. F. **Medieval ophthalmology in Mesopotamia.** Brit. Jour. Ophth., 1930, v. 14, Oct., p. 506.

This is a short résumé of a translation by Meyerhof of the earliest existing systematic text-book of ophthalmology. The original was found in a

collection of ophthalmological manuscripts belonging to an Egyptian gentleman, Taimur Pasha. The work concerns Hunain's "Ten treatises". Hunain was born at Hira, A.D. 809 and died A.D. 877. He traveled extensively and wrote much. His books reflect the works of the Greek physicians.

The first treatise gives the anatomy of the eye; the second, the description of the brain; the third, the optic nerves; the fourth, drugs, treatment, etiology and symptomatology; the fifth, diseases of membranes of the eye; the sixth, diagnosis of eye diseases; the seventh and eighth, simple remedies; the ninth, operation of couching; and the tenth, ophthalmic remedies.

D. F. Harbridge.

Reitsch. **Dystopic strabismus and strabismus in art.** Zeit. f. Augenh., 1930, Sept., v. 72, p. 197.

This form of apparent strabismus is a dystopia between lid slit and cornea; eyes which are heterotropic have unequal triangles of sclera visible in the lid slit. In art such a divergent eye position is used to suggest a spiritual expression. The Sistine Madonna is a clear example. This position was used with particular frequency in the second and third centuries of the Roman Empire and in the Prerenaissance.

F. H. Haessler.

Reitsch, W. **The plastic relations of the eyeball in the palpebral fissure.** Zeit. f. Augenh., 1930, v. 72, Aug., p. 13.

The author discusses the appearance of that part of the eyeball which is visible in the lid slit, with particular reference to its representation in painting and sculpture. The essential point which he stresses is that the caruncle is not a small appendage attacked symmetrically at the nasal meeting point of the lids, but is distinctly below a horizontal line which can be drawn through the canthi. The upper limiting line of the caruncle is represented by the curve of the upper lid edge extended nasally.

F. H. Haessler.

Weekers, L. and Hubin, R. **The stereoscopic acuity of one-eyed individuals, considered from the point of view of their fitness to drive automobiles.** Arch. d'Opth., 1930, v. 47, Oct., p. 657.

The stereoscopic acuity of groups of emmetropic, myopic, hyperopic, amblyopic, and one-eyed individuals was tested with the aviation test of Brabant. The latter group was divided into those who had recently lost an eye and those who had been blind in one eye for two or more years. The apparatus used was the fixed rod and two movable rods controlled by the patient. The first three groups of individuals showed no difficulty in stereoscopic acuity. In the one-eyed individuals stereoscopic acuity was markedly defective, and was about as much so in those who had been blind in one eye for many years as in those whose loss of an eye was recent. Even permitting the one-eyed individuals to move their head so as to use parallax did not improve their stereoscopic acuity to any extent. In individuals with amblyopia exanopsia, stereoscopic acuity was also quite deficient. The measurements are recorded in tabular form. *M. F. Weymann.*

NEWS ITEMS

News items in this issue were received from Drs. William B. Ebeling, Brooklyn; and G. Oram Ring, Philadelphia. News items should reach **Dr. Melville Black,** Metropolitan building, Denver, by the twelfth of the month.

Deaths

Dr. William W. Perdue, Mobile, Alabama, aged forty-four years, died October third.

Dr. David Nichols Dennis, Erie, Pennsylvania, aged seventy-one years, died suddenly November fifteenth.

Dr. William Ford Blake, San Francisco, aged fifty-seven years, died in Palo Alto on August twenty-eighth, of chronic nephritis.

Dr. Henry Arnold Alderton, Palo Alto, California, aged sixty-six years, died September thirtieth, of arteriosclerosis.

Miscellaneous

The American Brotherhood of Free Reading for the Blind, which has been doing such splendid work in providing braille books for the blind without cost, has decided to enlarge its advisory board by increasing the number of representatives.

President Hoover has invited fifty-two nations to participate in a world conference on work for the blind. The conference will take place in New York next April. Twenty-seven countries have already accepted.

Two innovations worthy of note have been introduced by the Brooklyn Eye and Ear Hospital recently: first, the appointment of a paid internist who is under the supervision of the visiting consulting general medical staff; and, second, the establishment of a dental clinic adjacent to the eye and ear department, so that a suspected relationship between infected eyes and teeth may be dealt with immediately.

The "August-September" issue of the Annali di Ottalmologia e Clinica Oculistica (just received) reprints in translation Dr. F. Park Lewis' article on Giuseppe Cirincione, from our August issue. The controversy with regard to Cirincione still continues, and we recently received a twenty-nine-page monograph, entitled "A proposito di 'Dare a Cesare'" . . . ., in which Professor di Marzio, of the Clinica Oculistica of Rome, undertakes rebuttal of accusations made against him by Cirincione's friends in the Annali di Ottalmologia e Clinica Oculistica. of which Cirincione was founder and editor.

At Bologna, Italy, a new ear, nose, and throat journal has been established under the title "L'Oto-Rino-Laringologia Italiana." The directors of the new journal are U. Calamide of Milan, S. Citelli of Catania, and P. Caliceti of Bologna. Publications will be every two months.

Societies

The Dr. May Fisher Foundation, established in Philadelphia in 1928, held its first annual ophthalmologic lecture October twelfth.

The Kansas City Society of Ophthalmology and Otolaryngology recently started the publication of a monthly bulletin. Dr. Burt R. Shurly, Detroit, addressed the society September eighteenth on "some observations on vitamin deficiency relative to the eye, ear, nose and throat".

The Philadelphia County Medical Society was addressed November twelfth by Dr. Charles R. Heed on "The conservation of vision from the industrial standpoint"; Dr. J. Milton Griscom on "the eyes of your children", and Dr. William Zentmayer on "Importance of ocular examinations after the fourth decade of life".

Personals

Joseph D. Heitger of Louisville has removed to Pasadena, where he has an office in the First Trust building.

Dr. C. A. Young of Roanoke, Virginia, recently underwent a gall bladder and appendix operation, and is convalescing at Miami, Florida.

Dr. Meyer Wiener, associate professor of clinical ophthalmology, Washington University School of Medicine, Saint Louis, on November eighteenth conducted a clinic at the Tulsa Academy of Medicine, Tulsa, Oklahoma, on plastic surgery of the eyelids, and spoke in the evening on "certain eye conditions of importance in the work of the general practitioner".

Two lectures on "recent work on the metabolism of the eye" were delivered at Harvard University medical school under the auspices of the Howe Laboratory of Ophthalmology by Dr. William Stewart Duke-Elder, London. The lectures were given on December fifteenth and seventeenth on "physiologic aspects" and "clinical aspects" respectively. Dr. Duke-Elder is honorary research associate at the University College, London, and lecturer of ophthalmology, University of London.